

## **Cocaine in Dentistry.**

By J. ALLEN JOHNSON, D.D.S., Indianapolis, Ind.

During the past few years the dental profession has watched with greatest interest the introduction of various drugs and compounds, heralded by their sponsors to supersede cocaine hydrochlorate, in the production of local anesthesia in minor surgical operations.

While the supremacy of cocaine as a local anesthetic has never been questioned, yet it has been a recognized fact that, associated with the alkaloids ordinarily obtained, there are certain toxic elements, chief of which is ecgonine.

To the presence of these toxic elements may be attributed the frequent and oftentimes alarming symptoms following its use. To eliminate the toxic effects of cocaine and retain only its anesthetic qualities, and to so combine the pure alkaloid with other drugs as to not only preserve it from deterioration but to intensify and increase the analgesic properties, has been the subject of special attention for a number of years.

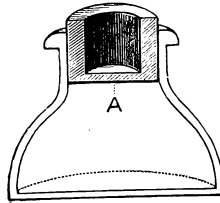
From careful observation, in a large number of cases, I have found that solutions of cocaine over three-quarters of one per cent in strength are liable to cause systemic disturbance and sloughing of the gums. Many persons are more susceptible to the effect of cardiac stimulants than to the depressant action of cocaine; hence where nitroglycerine is used as



## ITEMS OF INTEREST

the antagonist to cocaine, and in greater dosage than that required to neutralize the toxic property of the cocaine, we often have the symptoms of over stimulation of heart, shown in the flushed and anxious expression of the patient's face.

A common and dangerous practice among many dentists is to make up solutions of cocaine—without any attempt to exactness, in fact not having the faintest idea whether they are using a one-half of one per cent solution or a ten per cent solution, and results often indicate the latter percentage. It is due mostly to this class of operators that cocaine is looked upon with dread by many of our patients. Unless the dentist uses the utmost care and exactness in the making of cocaine solutions, it would be much safer for him to use one of the several local anesthetics now on the market.



*Fig. 1.*

To preserve the cocaine solution absolutely against infection from the ordinary air of my operating room I have devised the bottle stopper illustrated herewith. (Fig. 1.)

It will be seen by close examination of the above illustration that the object desired is to enable the dentist to fill the hypodermatic syringe without removing the stopper. This is accomplished by inverting the bottle and pushing the needle through the rubber diaphragm (Fig. 1A), which seals the same. Thus it will be seen that the air does not at any time come in contact with the anesthetic which remains sterile from the time of making until the last drop is used.

To show that the use of cocaine is increasing among intelligent and conservative dentists and general surgeons, both here and in European countries, we quote Dr. Paul Gives (*Dental Cosmos*, Vol. XL, p. 348):

"The writer very often saw his eminent master, Professor Paul Reclus, of the Faculty of Medicine of Paris, practice under the anesthesia of cocaine very extensive operations. Not only small operations like extirpations of cutaneous tumors, excisions of phalanges and fingers, but also the removal of the mammary gland, radical cure of hernia, gas-

trostomy, and lateral or abdominal laparotomy. These in the daily practice of this surgeon. In about twelve years Prof. Reclus has employed local anesthesia in more than thirty-five hundred operations. This long series, which was not only without one case of death, but without the slightest physiological trouble of the patients operated upon, has thoroughly reinstalled cocaine in the position it deserves by reason of its valuable qualities. Its use is now general in Europe, and especially in France. Many general surgeons have followed the example and the precepts of Reclus and nobody hesitates now to use it in dentistry or in special surgery."

As to form of combination in which the most desirable results may be obtained, I have by extensive experiments found that cocaine in a three-fourths of one per cent solution, with spts. glonoin, hammamelis, glycerine, phenol, boric acid and potassium iodide, gives the greatest satisfaction. Physiological experiments have proven this preparation absolutely harmless and to possess anesthetic qualities four times greater than the original percentage of cocaine in solution.

It is the yearning of the laity for painless operations that makes possible the ever present "Painless Dental Parlors" which disgrace our profession, and it is our duty as humane dentists to save our patients all unnecessary pain.

---

## Disease of the Antrum.

---

By C. MILLS, L.D.S., England, A.I.C., F.C.S., Kronstad, O.R.C., South Africa,  
Dental Surgeon to His Majesty's Forces.

---

The December, 1902, number of ITEMS OF INTEREST contained an account by my friend, Dr. J. W. Meadows, of Vienna, of an interesting case of antral disease, apparently caused by extension of inflammation from the mucous membrane of the nose, and successfully treated by him through the root canal of a tooth.

A case which came under my care in the Military Hospital, Kronstad, O. R. C., South Africa, may not be without interest. Mr. S. came to me on the 18th of April, 1902, with a swelling on the left side of the palate. There was very little pain or tenderness and no fluctuation could



## ITEMS OF INTEREST

be made out. There was no discharge from the nose on lying down. All the teeth from the cuspid on that side were missing, and I learned that the first bicuspid had been extracted some six months previously. Since that time the swelling had been gradually coming.

The swelling was lanced and packed, but there was no discharge of pus. On careful examination some days later, it was found that a probe could be inserted in the region of the root socket of the first bicuspid, and with slight pressure the probe was pushed into the antrum. Pus flowed freely and the orifice was packed with gauze until a piece of No. 12 catheter tubing could be inserted. The button of the catheter was shaped up and ligatured to the central and cuspid teeth to keep the tube in position.

After draining some days and syringing thoroughly with dilute carbolic acid (1 to 100) the discharge did not apparently decrease, so with an enamel fissure bur in the engine, the orifice was enlarged until a No. 8 catheter could be inserted. The antrum was then syringed out every other day with warm water, dilute carbolic acid, and nitrate of silver (5 gr. to  $\frac{3}{4}$  j). After the latter, a dilute solution of common salt was used.

On June 13 the discharge had practically ceased and the orifice was allowed to close. Since that time the patient has had no trouble at all. I should like to add that I found the catheter tubing in the absence of other means extremely useful. Slits were made along the length and free drainage obtained. The cause of the trouble was, I think, undoubtedly due to a small piece of the root being left in.

---

### Disease of the Antrum.

---

By FRANK J. BAILEY, D.D.S., Hartford, Conn.

---

An interesting and in many ways remarkable case of diseased antrum came to my notice on July of last year. I say disease of the antrum but the disease did not terminate there.

The patient, a young man of twenty, came to me for treatment of what he supposed to be an alveolar abscess. The entire right side of his face being greatly swollen, the pain, although never very severe, was constant.

The facial surface of the superior maxillary and malar bones was thin and elastic and yielded to the least pressure but would spring back into the original position when the pressure was removed. The gums and muscles above the teeth on the side affected were dark and inflamed.

The only tooth that appeared to be diseased was the right superior lateral incisor which contained two large approximal fillings of gold. This tooth was slightly discolored. Immediately above the cervical margin of the gum was a scar which seemed to indicate that there had been a fistulous opening from an old alveolar abscess.

By cutting through the mucous membrane in this region, a probe could be introduced into the antrum. An examination showed that the antrum extended nearly to the median line of the face. It was then decided to extract the lateral incisor and afterwards the cuspid was extracted.

The alveolus which was necrosed was then removed. Through the opening thus obtained it was found that the cavity was about three times the normal size, caused by necrosis of the walls of the antrum and contiguous portions of the malar, palate, sphenoid and turbinated bones.

By actual measurement it was found that the cavity from before backward was over three inches in extent. The lateral diameter was but very little less. The walls of the cavity throughout nearly its entire extent were denuded and there was a discharge of a grayish color and a sero-purulent character. The treatment consisted of curetting the diseased parts and inserting a rubber tube into the opening to allow drainage. Care was taken not to get the tube above the floor of the antrum.

The cavity was syringed out with warm water and with a solution of boric acid. This was followed by a dressing of iodoform gauze, the cavity being entirely filled with it.

After three weeks of this treatment, the patient was instructed to wash it out with boric acid twice a day. A soft rubber syringe was used for the purpose.

Three months after beginning treatment, a new membrane had formed over the denuded surfaces and the elastic condition of the bones had disappeared although the bone was not as thick as normal and probably never will be.

The swelling had entirely disappeared and the opening caused by the removal of the teeth and process is fast closing. This opening which had to be large in order to gain access for the removal of diseased bone may never close. A vulcanite plate with a high gum now covers the opening.





## Art in Relation to Orthodontia.

By EDWARD H. ANGLE, M.D., D.D.S., St. Louis, Mo.

*Address before the Second Annual Meeting of the American Society of  
Orthodontists, at Philadelphia, Pa., Oct. 10, 1902.*

Mr. Chairman, Members of the American Society of Orthodontists and  
Friends:

I wish this afternoon to try to interest you in a very important phase of the science of orthodontia—that which regards the lines and contour of the face from the standpoint of art, and the bearing which our work has upon the molding or modifying of these lines. I trust there is no one here so devoid of art as not to realize that the mouth is a most potent factor in making or marring the beauty of the face, and also that the teeth to a very large extent are responsible for the form, character, and beauty—or the lack of it—of the mouth. No one can be beautiful unless the mouth is in harmony with all the other features, and no one suffering from malocclusion of the teeth can have a mouth that is thus in perfect harmony.

Our duties as orthodontists force upon us great responsibilities, and I know of nothing in which the orthodontist should be more keenly interested nor better informed than in the study of the artistic proportions and relations of the features of the human face, for each of his efforts, whether he realizes it or not, makes for beauty or ugliness; for harmony

## ORTHODONTIA

or inharmony; for divinity or deformity. I confess that the feeling of great responsibility has often weighed upon me as I have begun the treatment of many of my patients. You who are close students of orthodontia well know the far-reaching results of the bungling errors of the incompetent upon the occlusion of the teeth, and were you as well versed in callesthetics you could as readily detect the defacing effects of these same bungling errors on the distorted lines of the face.

As orthodontists we must ever place foremost in importance the normal occlusion of the teeth, for only in normal occlusion is their greatest usefulness and beauty possible. But many of our patients would never



Fig. 1.

reach us were it not that the malocclusion of their teeth produced inharmony in the lines of their faces, and from this marring of the facial lines they come to us seeking relief. If our efforts are intelligently directed, we can do far more to render plain or even distorted facial lines pleasingly symmetrical, or even beautiful, than any one else who has to do with the human face. Indeed the changes which may be wrought by intelligent effort on the part of the orthodontist are often marvellous and almost incredible, and I hope to show you before I am through that they may also be equally efficacious in producing or enhancing ugliness and deformity if unintelligently directed.

But in order that our efforts may be intelligently directed towards the ideal what rule, what principle shall guide us? If there is not some grand principle as a basis from which to reason, we must be but gropers



## ITEMS OF INTEREST

in the dark, experimenters, with results which may cause embarrassment or even bitter regret.

We know that while human faces are all greatly alike, yet that all differ; and for years I sought to find some line or measurement which might be applied in any given case by which to detect these differences, and especially the abnormalities in individual cases, and from this basis to direct my efforts toward fulfilling the requirements of art. But no line, no measurement, admitted of anything nearly like universal application.

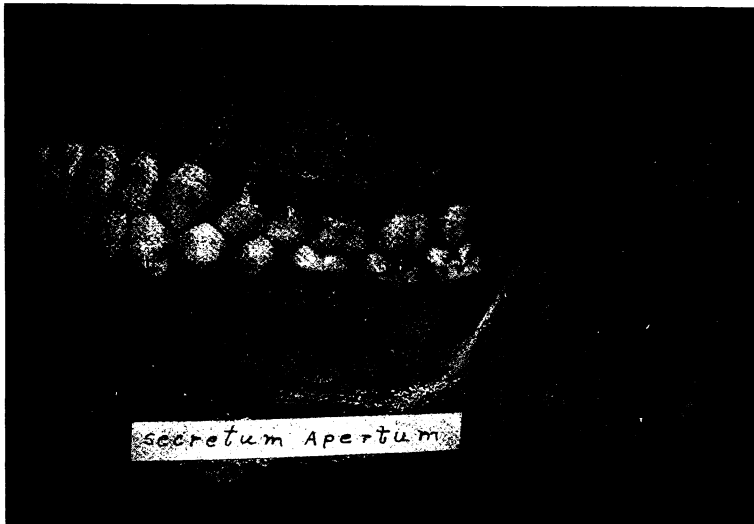


Fig. 2.

The line which applied so well to the Apollo face was wholly out of the question in gauging the harmony or inharmony of a very large percentage of other faces; and in despair I one day asked a great instructor in art, Mr. Edmond H. Wuerpel, what line this was, "for surely," I reasoned, "artists who make portrait study their life's work must know." To my great surprise he answered: "There is none. Such a line as you seek has been sought for by many, but it is not even possible." "Can this be true?" thought I. "Were Raphael, Murillo, Rembrandt, Van Dyck, Michael Angelo, and such great masters content to work without a basal line when even crude artisans, as masons and carpenters, have one?" But if it were true, I could understand why my long search for the magic



## ORTHODONTIA

line had been so unfruitful. Then I asked: "If there can be no fixed line, can you not tell us some way of determining what is wrong in the lines of our patients' faces, that we may intelligently direct our efforts towards their improvement?" And he said: "Yes. It must ever be judgment as to *correct proportion of the features in each given type*. That is, the nose, the forehead, the chin, the lips, must all be in correct



E.H.A.

Fig. 3.

proportion, in balance one with the other, and this will vary in each type and in each face. This power of correct judgment of proportion and balance seems to be a gift possessed by only a very few. Doubtless all may cultivate it to a certain extent, but I am convinced that not more than one in two or three hundred will ever master it, and even these must develop this judgment by close study in drawing and modeling, and in observation."

I confess this was discouraging to me as a teacher. Was it possible that only one in two or three hundred orthodontists would ever be able to develop that fine judgment so necessary to bring about the high ideals

## ITEMS OF INTEREST

in results for which we all so ardently longed? I have no doubt my artist friend is correct. My subsequent reading on this subject confirms this belief. Yet notwithstanding this, I believe we do have a rule which artists probably know nothing of, and one more unvarying and more reliable than even the judgment of the favored few—a rule so invariable and with so few exceptions that we may almost consider it a law, and if it be not applicable in all cases, the exceptions will be so rare that they are hardly



Fig. 4.



Fig. 5.

worth considering. It is, furthermore, a rule so plain and so simple that all can understand and apply it in each case. It is that the best balance, the best harmony, the best proportions of the mouth in its relations to the other features require in all cases that there shall be the *full complement of teeth, and that each tooth shall be made to occupy its normal position.* And if we accomplish this we shall have satisfied the demands of art so far as they are concerned in the relation of the mouth to the rest of the face.

I know this will surprise you who are familiar with the literature of orthodontia, in which extraction has been so lavishly advocated. How often have we read that in the treatment of cases of malocclusion extrac-

## ORTHODONTIA

tion was resorted to "to prevent the lips being made too prominent," or, that "the requirements of art necessitated that I remove such and such teeth," or that "the patient inherited the large teeth of one parent and the small jaws of the other, making extraction necessary for the art requirements as well as those of occlusion."

Having inherited, as it were, these sayings, I also naturally believed them, but I am now positive that they are wrong, without substantiation, and that they ought to be abandoned, and that working from these dic-



Fig. 6.

tates must be followed by asymmetry of the face, which is perhaps only the least of the evil effects.

These conclusions have not been arrived at hastily, and I wish to offer as evidence a large number of cases which represent not the easiest, but the well-defined or most difficult cases belonging to all of the different classes and sub-classes of malocclusion, or in other words, evidence which embraces the entire range of types and sub-types.

Some of the pictures which I shall show were used in illustrating other points relating to orthodontia in a lecture which I gave last Tuesday evening before the Institute of Stomatology in New York and which will be published in the *International Dental Journal*. They will be here shown to tell chiefly of the story of art.



## ITEMS OF INTEREST

The first picture, Fig. 1, shows a face of much beauty and fine proportion, and the point that I would emphasize is that such proportion and such beauty can only exist where everything is in harmony—normal throat and nose relations, normal development of the bones and muscles, and normal occlusion of the teeth. Had one tooth been sacrificed during the development of this face we could not have such beautiful contour. Or had but a single tooth been sacrificed after the full development of the face these beautiful lines must soon have been marred from the inevitable tipping and malocclusion, which always follows the loss of a tooth unless it be



Fig. 7.

immediately artificially substituted. Such perfect proportions and such fine lines are rare, among modern mortals at least, but I insist that the principle will hold good, that the full complement of teeth is essential to the best proportions, be the lines *fine or otherwise*.

Fig. 2 shows normal occlusion, without which, as we have said, such a face as is shown in Fig. 1 is impossible.

The next two pictures, Figs. 3 and 4, show lines of wonderful contrast. Those of the face of Apollo are supposed to be faultless in proportion and to typify beauty, and yet what a marked contrast with the lines and proportions of the other face (that of Wm. Whipple), which I believe to possess far greater beauty, for it seems to me that not only are the proportions of this remarkable face in equal balance, but that it possesses in addition intelligence, strength, majesty.

## ORTHODONTIA

We might with profit study a large number of other faces of fine proportion, but we must hasten to a consideration of those faces in which, by reason of malocclusion, the mouth is thrown out of harmony with the other features.

Here is another face, Fig. 5, familiar to you all. In addition to naturally fine proportions there shines out a kindness and gentleness in this face which has made this man so lovable, and yet how all is marred and thrown out of harmony by the mouth, evidently through the loss of teeth necessary to give it proper contour and proportion.

Fig. 6 shows another face which has many of the elements of beauty, and yet I am sure that none of you who have made anything like a close study of this subject can fail to readily detect that the mouth lacks much

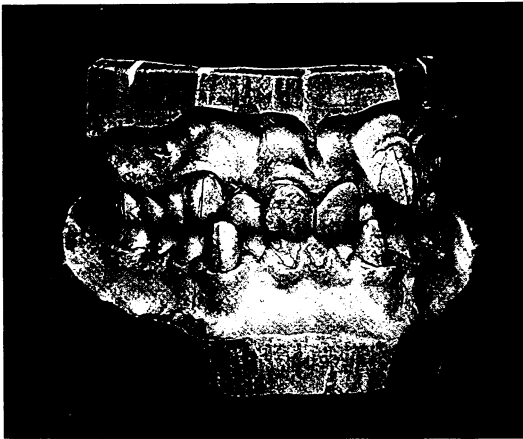


Fig. 8.

in proper contour—the result of the loss of teeth. Were the full complement of teeth present, that depressed upper lip would have a much more pleasing contour; the deep line from the nose to the angle of the mouth would be far less pronounced and the angle formed by the nose and the upper lip would be less obtuse and much more pleasing and in keeping with harmonious proportions of the face.

Fig. 7 shows the face of a boy fourteen years of age, and you will note how lacking in proper contour is the region of the mouth. This lack in the facial contour will impress you more when you remember that at this age a boy's mouth should be more prominent in proportion to the rest of the face than that of the adult, but upon reference in Fig. 8 to the excessive malocclusion the reason for this lack of normal contour becomes



## ITEMS OF INTEREST

apparent. There is very pronounced crowding of the teeth, both upper and lower, and, as must naturally follow, lack in the development of the alveolus, for this can only be developed in accordance with the positions of the teeth. This is a case in which I would have thought a few years ago that extraction was positively necessary to the requirements of both art and occlusion, and it has taken a long time for me to feel sure, as I now do, that in all such cases extraction is emphatically contraindicated.

Fig. 9 shows the face of the same boy three years later, and you will note how greatly the contour of the face has been improved and how



Fig. 9.

much better the balance of proportion has been established. The reason for this is made clear by reference to the next picture, Fig. 10. The teeth have simply been placed in normal relations and retained until the development of the alveolus, so long arrested by reason of the malpositions of the teeth, could be completed, or, more correctly, had been allowed to "catch up" in its growth with the other bones of the face. Had one tooth been sacrificed (to say nothing of four bicuspid, or even of six bicuspid and one first molar, as I have recently seen in a case submitted to me in

## ORTHODONTIA

consultation), the result would certainly have been most noticeable in the resulting lack of proper contour of the mouth.

Fig. 11 shows the profile of a boy aged eleven, and you will all doubtless say that the lips are already too prominent, and that to expect to correct his pronounced malocclusion, shown in Fig. 12, without extraction would seem to be to greatly augment the prominence of the lips, spoiling the balance of proportion and even creating an unsightly deformity. But you will see that even in this remarkable case the law that I would like to establish holds good, for in the next picture, Fig. 13, there has been made ample room in the arches for the teeth when placed in normal occlusion and the facial lines have not been made worse, but, on the contrary, greatly improved, as shown in Fig. 14. Who can place a money value on such an improvement?

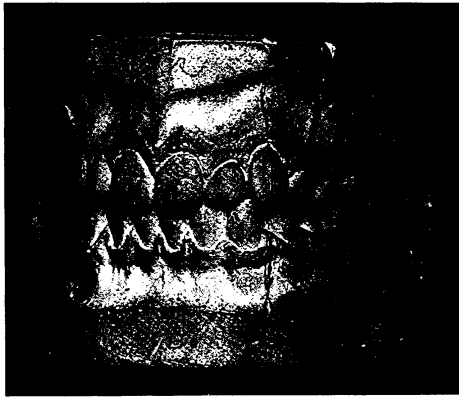


Fig. 10.

I could show you a large number of other cases belonging to this class of malocclusion (Class I), and they would all prove the correctness of my theory. Indeed I cannot look back over all the long list of my cases without feeling that I have made blunders, at least from an artistic standpoint, in the cases belonging to this class in which I have extracted teeth, except possibly in one or two, and even these are debatable.

Here is one case, Fig. 15, in which it may have been an error to have retained all of the teeth. It was so decided by Prof. Wuerpel who says that the lips have been made too prominent, and this is the only case that he has so criticised. Now we can see reason for his criticism for the lips in Fig. 16 are perhaps overprominent to be in best balance with the rest of



## ITEMS OF INTEREST

the features, but even in this case I believe that I am right, for let us remember two conditions existing here: First, while the teeth are developed to full size, the development of the rest of the bones of the face is far from completion, and the nose, the forehead, the chin, will all be different at maturity and in far greater harmony with the present sizes of the teeth. Second, the lips in this case are temporarily over-developed by reason of a habit frequently contracted, especially in nervous patients—that of working the lips more or less constantly on account of the presence of the appliances in the mouth, thus tending, as with all muscles, to increase in size



Fig. 11.

with increased exercise. But when the cause is removed they speedily return to their normal size. I have seen this in a number of cases. So I believe that in five years the correctness of the theory will be proven also by this case. If possible I shall at the proper time again publish the picture of this face.

Fig. 17 illustrates another case from which we may learn many valuable lessons. We need be but superficial artists to readily detect that the mouth in the face on the left is greatly out of harmony with the rest of the features. The lack of proper contour is so pronounced as to possibly create the impression that all the teeth may have been lost and that the lady is wearing badly proportioned artificial dentures. But the real



# ORTHODONTIA

cause of the deformity is readily determined by a study of the condition of the teeth, shown in Fig. 18. It is due to bad dentistry—to the perpetuation of an old and very pernicious theory among dentists, namely, the effort to prevent malocclusion by the practice of early sacrificing the four



Fig. 12.

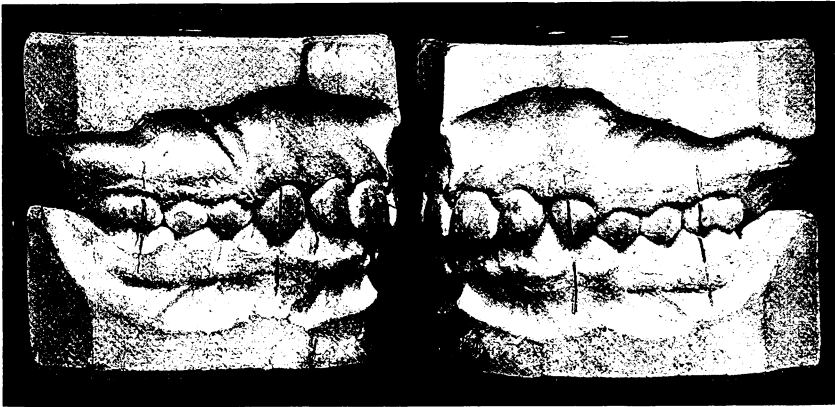


Fig. 13.

first molars, which in this case were removed at the age of nine years, though perfectly sound. The result shows what an unfortunate blunder has been committed in the name of science, and how seriously the occlusion and facial lines have suffered. It is remarkable how such practice could ever have gained standing among thinking, reasoning men of our profession.

You will note that the incisors both upper and lower are retruded, and the tipping of the other teeth is so pronounced as to destroy the

## ITEMS OF INTEREST

normal relation of all of their occlusal planes. The lack of contour of the facial lines was but the natural result of the loss of these teeth. The teeth anterior to them could not be pushed forward in accordance with the requirements in the development of the alveolus to its full normal size. In other words, there was an arrest in the development of the alveolus, with a corresponding effect on the facial contour, which is so apparent in the profile.

I hope that all those who lightly sacrifice the first molars will study well the result of such practice, as shown in this case, for this is not an



Fig. 14.

unusual result, but an unvarying one. It is a law that I have never yet known to act differently, the only modifications being due to the age of the patient—the earlier it is done, the more far-reaching the evil effects. The teeth that remained were in this case practically useless for mastication. The only rational treatment that I could think of was the restoration of each tooth to its normal occlusal position and the replacing of the lost teeth by artificial substitutes. The result of this treatment is shown in Fig. 19, where the case is ready for the expert bridge or plate maker. The improvement in the facial lines is shown in the face on the right in Fig. 17.

**Class II,  
Division 1.**

Let us take another case typical of another great Class—that of Division one of Class II. Cases belonging to this class are remarkably similar, as you know, scarcely differing except in the degree of protrusion of the incisors.



Fig. 16.



Fig. 15.

## ITEMS OF INTEREST

In this class the lower first molars occlude distally to the upper so that it is the disto-buccal cusp instead of the mesio-buccal cusp of the



Fig. 17.

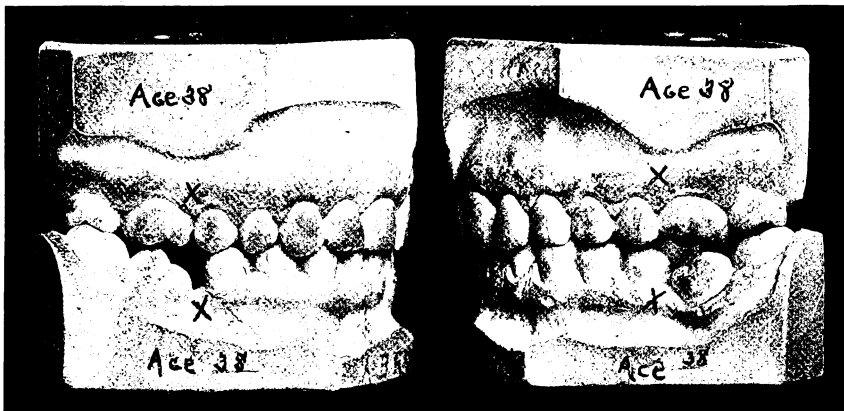


Fig. 18.

upper first molar that occludes in the buccal groove of the lower first molar, as in Fig. 20, thus throwing all of the lower teeth as they erupt in distal occlusion, and, of course, establishing a corresponding inharmony

# ORTHODONTIA

in the facial lines of the patient, Fig. 21, which are augmented by other conditions not here necessary to consider. This condition creates the impression oftentimes that there is an overdevelopment of the upper jaw, and



Fig. 19.

naturally suggests the necessity of the sacrifice of the upper first premolars in order to reduce the upper arch to the supposed proper balance. But again I believe my theory holds good and that extraction can only

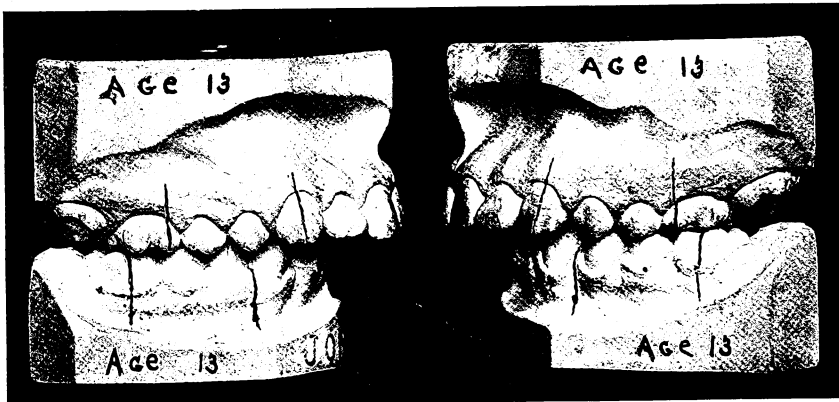


Fig. 20.

result in the patching up of one deformity by creating another, the result being far worse from an esthetic point of view, in most cases, than no treatment at all. Such a result is well shown in Fig. 22. It needs but a



## ITEMS OF INTEREST

very poor artist to realize how greatly out of harmony the upper lip is with the nose, and how unnatural and noticeable is the angle thus formed. Of course the result in this case is more noticeable on account of the shortness of the nose and undeveloped chin. But in any case of this class the result of extraction would be the same, varying only in degree.

Now what should have been done in this case, as in all similar cases, was to simply have placed all of the teeth in normal occlusion. We would then have brought forward the lower part of the face to be in better balance and proportion with the other features, as shown by a comparison of the next two pictures, Figs. 23 and 24.



Fig. 21.



Fig. 22.

Fig. 25 shows the facial lines in a typical case belonging to this class—that of a boy aged eleven years.

It will be seen, in Fig. 26, that the first molars have well-defined cusps which are locked in positions of distal occlusion. As time goes on the incisors in these cases, unless treated, become more and more prominent by reason of the lower lip tending to force them outward in the closing of the mouth. This is a striking characteristic of all cases belonging to this division of this great class. Fig. 27 shows the case after treatment. It will be seen that all of the teeth have been placed in normal

# ORTHODONTIA

occlusion and the picture, Fig. 28, shows how well the balance of proportion has been established, and how well the law applies in this case.

**Class II,  
Division 1,  
Subdivision.**

In the subdivision of this division of this great class, or where only one of the lateral halves of the lower dental arch is in distal occlusion, the other side being in normal occlusion, the effect upon the facial lines, as in Fig. 29, is the same as in the full divi-



Fig. 23.



Fig. 24.

sion just described, only less in degree, and we will find by comparing the contour of the face in Fig. 30 with that shown in Fig. 29, or after each tooth had been placed in its normal occlusal position, that the law applies equally well.

**Class II,  
Division 2.**

Cases belonging to this division of this class are characterized by distal occlusion of both lateral halves of the lower arch and retrusion of the incisors, as in Fig. 31, on account of normal breathing and normal



## ITEMS OF INTEREST

lip function, instead of protrusion of the incisors, as in Division 1, due to lack of proper lip function.

Thus it will be seen that the molar relations in the two divisions of this class are the same, but that the marring effect on the facial lines are vastly different, and yet that in each case, when the normal number of teeth are normally placed, as in Fig. 32, the lines of the face are brought to the best possible harmony—that the features balance, as may be seen by a comparison of the profiles of the face before and after treatment in Fig. 33.

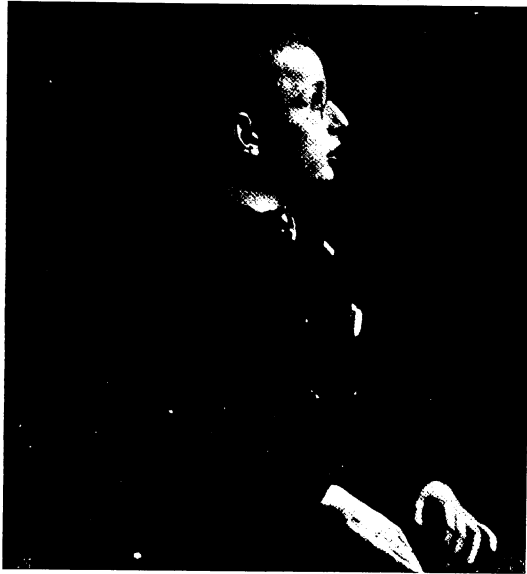


Fig. 35.

**Class II,  
Division 2,  
Subdivision.**

Figs. 34 and 35 show the facial lines before and after treatment of a case belonging to the subdivision of division 2, Class II, or where only one of the lateral halves was in distal occlusion, the treatment in this as in the former cases being the establishment of normal occlusion. A study of the facial lines will show how perfectly the principle I am trying to impress you with applies, and as you study these pictures and note the changes following the application of this principle I would like to have you as students try to form in your minds the pictures that would have followed the time honored plan of treating these cases, where extraction—mutilation—is resorted to.



# ORTHODONTIA

## Class III.

Fig. 36 shows a typical case belonging to Class III, or where the teeth are in mesial occlusion—that of a girl aged thirteen years. The treatment consisted in placing all the teeth in normal occlusion, as shown in Fig. 37.



Fig. 26.

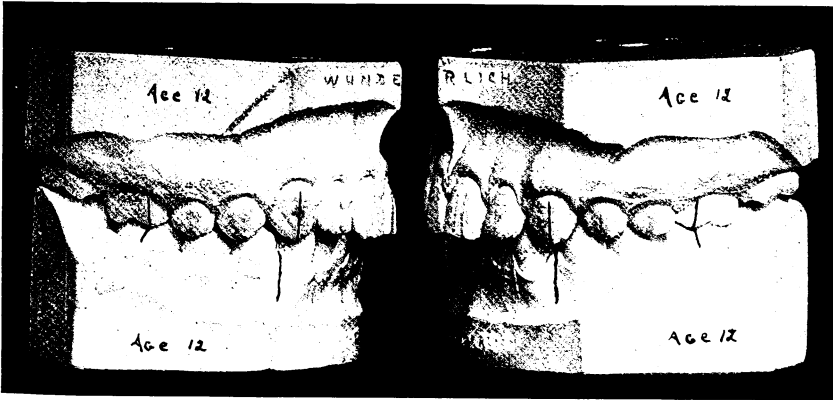


Fig. 27.

The improvement in the balance and proportion of the face is well shown in Fig. 38. Again the correctness of the law is verified.

The aggravated cases belonging to this class (cases belonging to which are always progressive) cannot in most instances be improved by

## ITEMS OF INTEREST

simple tooth movement, for they have passed beyond relief from orthodontia into the realm where surgery upon the bone itself is required. Hence the importance of beginning the treatment of these, and I may



Fig. 28.



Fig. 29.



Fig. 30.

add with all the earnestness of which I am capable, of *all cases*, early to obtain the best results both in art and in occlusion.

In conclusion let me repeat that my belief is that if we would con-

# ORTHODONTIA

fer the greatest benefits upon our patients from an esthetic standpoint we must work hand in hand with nature and assist her to establish the relations of the teeth as the Creator intended they should be, and not resort to mutilation. And if I have not succeeded in converting you I hope



Fig. 31.

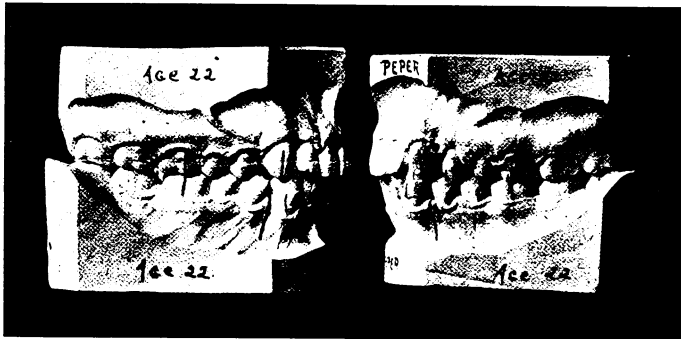


Fig. 32.

that I have at least set you to thinking most earnestly, and if so I know that it will result in at least a lessening in this horrible sacrifice of these priceless jewels—the teeth.

I thank you for your close attention and know of no more fitting way to close this lecture than to offer for your pleasure the inspection of the faces of the men who have been most earnest in the upbuilding of ortho-



## ITEMS OF INTEREST

dontia, and I would ask you to note, as I do with pride, what intelligent, well-proportioned faces are represented. I doubt whether a like number of the leaders in any other one great branch of dentistry would excel them in intelligence and artistic proportions.



Fig. 33.



Fig. 34.

Fig. 35.

Then were placed upon the screen in the following order fine likenesses of Fauchard, Fox, Harris, Tomes, Tucker, Westcott, Kingsley, J. W. White, Bonwill, Magill, Farrar, Guilford, Case, Baker, Brady, Matteson, Goddard.

# ORTHODONTIA

## Discussion.

**Dr. Summa.** I have had the privilege on previous occasions of listening to similar lectures by Dr. Angle. They afford me the same study and pleasure as a classic in music. It is impossible to hear a lecture of this kind often enough and a discussion of this discourse can be but by emphasis and affirmation. Who is there who can dispute the fact that occlusion is the basis of the science of orthodontia? Therefore it seems quite reasonable that retention and restoration of normal typical occlusion must bring about correct facial line. It is time that statements in regard to excessive number and size of teeth be limited to monstrosities.

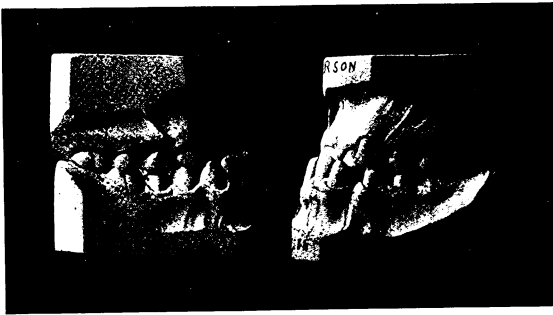


Fig. 36.

Excepting these, nature makes no more a mistake in the number of teeth allotted to man than she does in the number of bones which form the framework of the human body.

It does seem pitiful that the dentist, the man who is supposed to devote his thoughts and employ his logic in unraveling the mysteries of tooth disease, should fall into the error of the superficially observing laity, in considering the apparent inharmony between the sizes of the fully formed crowns of the erupting teeth and the not yet fully grown bony and muscular structures of the human head, as a deformity. The evil consequences of extraction for this reason are appalling.

I desire also to voice my conviction that extraction of the first permanent molar for the prevention and correction of so-called irregularity of teeth is malpractice.

I do not deem it necessary at this time to rehearse any of the reasons for retaining the first permanent molars. But I do wish to state that the



## ITEMS OF INTEREST

most incriminating evidence against the advocates of this pernicious doctrine is offered by the illustration of cases which they imagine to have been benefited by the removal of the most important teeth of the human set.

I want to tell Dr. Angle that I think he is wrong; **Dr. U. E. Barnes.** decidedly so when he says that he is not an artist.

Does the sculptor or the painter do as great a work as the man who changes and beautifies the living tissue? I cannot describe my feelings upon witnessing these pictures this afternoon. Perhaps you may imagine them for me when I tell you that my instruction in orthodontia came from a different school; one in which extraction is



Fig. 37.

strongly advocated and in which occlusion is not considered as the basis of regulation. Long ago I doubted the wisdom of that kind of instruction and began to work and look for better methods and have been aided greatly by Dr. Angle's work. Teeth extracted for regulation will be a rarity in my office. The Doctor is right in what he says about the instruction in our dental colleges. Oh, that we could bring some concentrated action to bear upon the colleges and stop the foolish teaching that is going on. I have taught under a professor for three years, but I shall feel that I have accomplished something if I can undo some of that teaching. If I can get the dentists of my locality to stop extracting for regulating, it will go a long way towards correcting existing evils. Whether or not the maxillary bone grows after widening the arch is a question that will require a long time to settle definitely. It hardly seems creditable that

## ORTHODONTIA

the vault can grow upward, but does not the alveolus grow downward? If we take two coincident arches and put one below the other the lower appears the larger, then if we move the lower up until they coincide, we see that there is no difference.

**Dr. Angle.** It is a larger circle.

**Dr. Barnes.** To me it seems that the growth must be in the alveolus.

**Milton C. Watson.** It seems almost needless to try to add anything to what has been said, yet an experience I have recently passed through has so impressed itself upon



Fig. 38.

my mind that I cannot resist mentioning it here. A year ago a patient was sent to me who originally had a very fine occlusion, except for a slight torso-occlusion of the lower lateral incisors. The family dentist believed that her lips and teeth were too prominent, so he proceeded to extract the four first bicuspsids from this beautiful set of teeth, really among the finest I have ever seen. After working for a considerable time to close up the spaces the patient was referred to me. The situation was an awkward one, for I believed the loss of these teeth would seriously mar the facial lines, yet to fill in these four spaces with bridges was also very undesirable.



## ITEMS OF INTEREST

I considered the matter with the family dentist and finally decided to go ahead and close up the spaces as he had started to do, believing, under the circumstances, it would be better for everybody concerned. These spaces were closed up with comparative ease and, greatly to my surprise, did not disfigure the face as I had told the family dentist it would.

The patient went away for a vacation and upon her return a few days ago came in to see me, and really I could hardly believe my own eyes. Her facial lines had changed in the meantime to the extent of being seriously marred, yet the teeth were even more symmetrically arranged than at the beginning of retention. The change in the face was due largely to the shifting of the roots of the teeth. I grant you that in the beginning the teeth and lips were the least little bit too prominent for the rest of the face, but I believe if they had been left alone until the young lady was fully developed that she would have possessed a beautiful face, for she had one that was really very attractive to begin with.

I speak of this, if possible, to impress even more deeply upon your minds the truth of what Dr. Angle has shown regarding the extraction of teeth. I believe I have seen one or two cases where the extraction of a bicuspid above and below on one side, and the closure of this space by the retraction of the anterior teeth would bring about greater harmony of the facial lines, but I believe cases requiring such treatment to be extremely rare.

To the thoughtful, painstaking man the treatment of cases belonging to the second and third classes, by the use of "Baker Anchorage," is certainly infinitely more gratifying in the results, to say nothing of the greater ease, comfort, and speed with which it is accomplished over what was true when we were compelled to resort to extracting.

As to the head gear, I should dislike to feel I could not have it if I wanted it. While it is true that I have only had occasion to use it once in two years, yet if I had been deprived of it in this case I would have been most seriously handicapped. I quite agree with Dr. Angle, however, that the cases in which we have need of it are exceedingly few.

In closing I will try to be brief for I have already trespassed greatly upon your time.

**Dr. Angle.**

First, let me thank you for your close attention to and appreciation of my talk. It encourages me to greater effort, but it will all amount to nothing unless it stimulates you to work and strive and think, think, think. Without this you will make no progress.

Oh, what a wonderful subject it is! So full of interest and fascination! Every face and every picture of a face you see is an opportunity for study, and oh, what vast varieties of faces! Such a mixing and blending of types! The pleasures of your travels everywhere may be

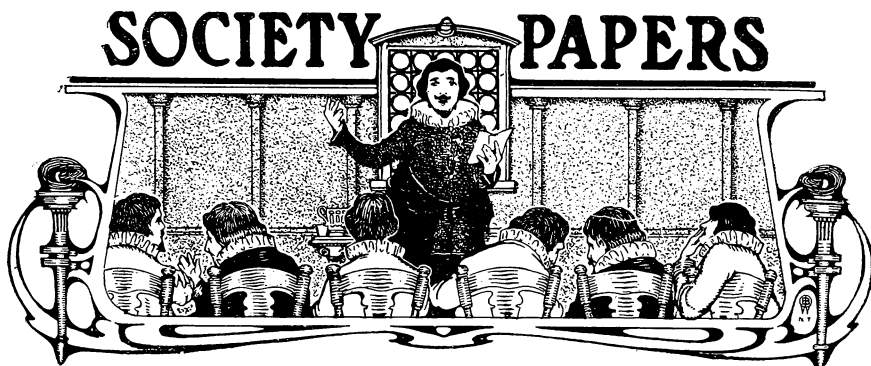


## ORTHODONTIA

greatly enhanced by such study, as well as adding joy and value to your work. We must all be artists—not mere appliance-makers and adjusters, but real art must be behind and to a large extent direct our mechanics. And you cannot intelligently judge whether the principles I have enunciated today are correct, without being artists, therefore you cannot learn too much about art. You should study it in many ways and I would recommend that you read some or all of the following works on art: DeForest's "Short History of Art;" Mrs. Van Rennselaer's "Six Portraits;" Sensier's "Millet;" S nsier's "Rembrandt;" Reynold's "Talks to Art Students," and Hunt's "Talks on Art."

And now it is incumbent upon me not only to close this discussion, but to end my duties as your presiding officer for this year. Twice you have honored me by making me your President, and I shall always be very proud of the fact, for I believe this is one of the most truly earnest and honest societies in the world. I have in my feeble way done my best, but my efforts would have amounted to but little had I not had encouragement and strong assistance from you all, and now it comes time for me to lay down the gavel. I feel proud to turn it over to so worthy a successor as Dr. Watson. I know that he will be earnest and diligent, and I believe that the same earnestness and diligence will also be manifested by all the committees and members. I thank you one and all.





### ***Advertising a Vicarious Duty.\****

By J. H. CROSSLAND, Montgomery, Ala.

*Read before the Alabama State Dental Society.*

The birth of the century finds a tremulous unrest extending throughout all the avenues of human affairs. The throne of Mammon is more crushing today than ever before in the history of the world. The gold armored ship of trust rides heavily on the surging sea of human effort. "The song of the shirt" echoes in mournful cadences in thousands of unhappy homes. That tiny hands might rest from toil and dear little souls know the hallowed charm of halcyon days, as was intended, a band of glorious women were impelled to leave the secluded precincts of home, and like a bevy of angels, hover around the legislative halls of this great Commonwealth.

Luxuries of other years have become necessities of today. That aged hands may cease to toil and loved ones descend in peace toward the sunset of life, that culture may diffuse its divine light into countenances that reflect the images of their own, are of the eternal desires of those whose hearts crave the good, the pure and the beautiful. All desire for gold is not sordid. Could the necropolis of the Cynics of old yield up its dust and snarling Diogenes come into the rushing tide of human progress of today, *he* would not stand so erect as to lean backward in the presence of that auric ruminant the Jews of old did worship.

\*This excellent and timely article should be read by all.—EDITOR.

The thinking man of today, ever alert to the issues of the present, calmly conscious of the history of the past and its rhythmic repetition if itself, raising his vision, for a moment, from marts of struggling masses and struggling classes, to the horizon of the future, beholds, hovering near the trembling star of industrial destiny, the red star of revolution. This tremulous unrest, this unsteady anxiety for immediate acquisition regardless of general effects, has been termed "Americanitis," and in this cogent expression we have a succinct summary of the spirit which leads members of liberal professions to what is commonly called advertising; and also of that which pervades the advertisements. A glance at its etymology may not be inappropriate. *Ad*, to, and *verto*, to turn—to turn the attention to, to inform, to give notice, advice or intelligence, to publish a written account of, etc. The elements of veracity and integrity and of various human frailties enter so largely into advertising that we have, besides many variations, the real and the pseudo.

Dentistry, as a science broadens and deepens ever, its beautiful technique, in some respects, approaches a fine art, and a few years more will bring it admission to that charmed circle and place its votaries in heritage of the masters of old. This transition period, coincident as it is, with the most active and universally engrossing epoch in the history of industrial evolution, finds the public mind so completely and constantly absorbed in innumerable issues, and so accustomed to the numberless impressions forced upon it for advertising purposes, that the advertisement becomes a necessity and a duty—a duty bequeathed by those choicer spirits around whose memories cling that halo of glory and reverence with which the exemplars of progress in all ages have adorned the tomb of the pioneer—a vicarious duty.

"The instinct which leads every generous soul to impose upon itself tasks of noble asceticism and vicarious virtue, is but the trembling of the balance of justice through the heart and mind of man." "Often do the spirits of great events stride on before the events." Mechanics, laboring to check the ravages of unseen agencies at the gateway of alimentation, repairing, with such means as ingenuity brought to avail, the mysterious temple of the human soul, felt the heart throb of civilization's victims, and "hearing oftentimes the still, sad music of humanity," held communion with that holy something which leads man's ambition to the realm of the good, the pure and the beautiful; and turned to each other.

"All who joy would win must share it, happiness was born a twin." And lo! as if in atonement, evolution, that dauntless current upon whose calm and steady tide civilization descends the ages, bears a greeting to human suffering. Star-eyed science gathers now her glory and her



## ITEMS OF INTEREST

chivalry, and soon to her constellation, a glorious trinity is added—College, Journal, Society, of dentistry.

But not alone on these rests this sacred obligation; it has descended to each and every votary of the calling, however great, however humble. "A sense of duty pursues us ever. It is omnipresent, like the Deity. If we take to ourselves the wings of the morning and dwell in the uttermost parts of the sea, duty performed or duty violated is still with us, for our happiness or our misery. If we say the darkness shall cover us, in the darkness or in the light, our obligations are yet with us."

"I slept and dreamed that life was beauty,  
I woke and found that life was duty."

### **Varying Modes of Advertising.**

In the course of human events, some men become the authors and others the victims, of advertising. Likenesses of dentists appear in public press surrounded by statements calling attention to the splendid opportunities that will be lost by those who fail to avail themselves of the exceptionably valuable services offered for a song, and that in installments, and advertising the gentlemen's popularity with the gentle sex. A special edition of a daily sometimes contains the likenesses of dentists and statements as to professional careers in which the idea of progressiveness and superiority is not conspicuous for its absence, nor the name of Alma Mater spared the honor of special mention, nor their membership in this society and official position left to inference. One of the victims in such cases informed me that the portrait and sketch were both put in without his knowledge or consent. Then, a paper contains the following in several issues:

"Dr. ——— has moved into his new offices on ——— Avenue over ———'s store. These rooms he has had completely remodeled, and they are now the most elegantly equipped offices in ———. Soft carpets, brilliant rugs, beautiful pictures, dainty pottery and charming statues are all combined in tasteful harmony, carrying out the gorgeous color scheme of red, blue and gold, and the pleasing whole presents more the aspect of a handsome drawing room than the conventional dental parlor. The doctor has also some new inventions for the use of his profession which are rare in the South, conspicuous among which is a very ingenious dental machine for excavating cavities in teeth which is a great improvement over the one now more generally in use."

Inquiry disclosed a singular combination of greed and liberality in the conduct of the aforesaid newspaper. The most positive assurances were given that Dr. ——— was not only entirely without knowledge of

it until he saw it in print, but also of his deep humiliation. It was also learned that the second insertion was by accident. But the mystery ends not here. Comparison of mental notes of conversations with a representative of the paper and Dr. ———, on different and distinct occasions, revealed the curious fact that a removal notice inserted in another part of the paper cost him exactly sixty per cent more than the regular rate for the same space, in the same locality. It has been said that figures do not lie. This is a mistake—these did.

A paper once contained some writings on a dental subject, and in connection with the same, an allusion to the high honors once conferred on the author by this society. Asked the cost of publishing similar matter, the manager replied that it would be considerable, but that in the case referred to, it was nothing, the gentleman being a friend of some one connected with the paper, and really utterly ignorant of the publication, unless he had read it.

Once a sign bearing the name of a dentist labeled a booth on the pavement of an historic city during a street fair, and printed matter and samples of drugs bearing his name were handed out to the passing merry-maker.

A lady once said to her dentist that she had been under the impression that the Alabama Dental Association prohibited advertising. Answered that her understanding of the matter was correct, she politely informed him that Dr. ——— was in the habit of advertising and that she had seen the programme of an approaching meeting, and that he was to read a paper.

Then we have the man who boldly tells his patients that he is without an equal this side of the Metropolis of the nation in the treatment of certain affections of the teeth, haply including that from which he or she may be suffering.

The following appeared in the form of a circular letter:

"Some remarks. It has been my purpose to serve the people of ——— faithfully, and I believe sincerely that my visits there have been of threefold benefit to her citizens; those especially for whom I did work. First that there was no dentist located or visiting there who appeared to believe in the old but true saying, 'There is no excellence without great labor.' Second: My going there regularly and doing for the people a good class of work has insured a better service for the future, both as to frequency of visits and services rendered. (Hard work brought success where others failed.) Third: Personal care of mouth. My habit of laying great stress on personal home care of the teeth (going into detail as to method, etc.) has opened the eyes of many to a better preservation of their teeth and gums. Finally: As much as I appreciate the citizenship



## ITEMS OF INTEREST

of ———, many of whom have been indeed kind to me, it is nevertheless my fortune to have to modify my plans in reference to frequency of trips there; business at home office has so largely increased of late, that I am forced to the measure. (Pressing demands at home.) For some time past I have had to cut short my stay there on account of pressing demands at home. On all of these occasions your people were solicitous of my staying over and doing work, new or unfinished, a number coming to ——— from time to time, to have their work done at my home office. Allow me to wish every one of you normal prosperity and blessings.

"Yours truly,

"——— D.D.S., ——— Ave., ——— Ala."

A booklet handed out by a commercial establishment includes a dentist among the dispensors of "home merchants trading stamps," which are given with every purchase, and the accumulation of a certain number of which entitled the bearer to a prize. And all the above victims and authors are members of this society; and is not the dental code of ethics the dental code of honor? Do not these words of the poet ring in your ears?

"Oh for a tongue to curse the slave  
Whose treason, like a deadly blight  
Comes o'er the councils of the brave."

One man advertised that he was a graduate of ——— University, pronouncing an encomium on the college. The venerable dean begged him to omit this phase of the infamy and not humiliate his Alma Mater.

A gigantic son of the jungle, strutting in gaudy apparel, with labeled cap, cries out in stentorian tones, "The Great American Dental Co. We operate the best equipped and most modern dental office in the world. Examinations are absolutely free!"

A great daily paper contains a cut of the body of a bee bearing the inscription, "King," and the face of a man. Around this figure are many smaller ones bearing distorted human faces and labeled "Imitator," all under the classic caption, "Dr. Snoucks, the expert dentist."

Then there is the man who calls his shop a parlor and quotes his prices on a signboard at his door, and claims to do painless dentistry.

A weekly paper has the following:

"Who struck Billy Patterson has never yet been determined, and probably never will be. The other day, when Mr. ———, who was working with a bridge crew on the railroad, fell and knocked out three of his teeth on a pile, while dazed by the fall, he was yet better off than Billy Patterson, because he knew what struck him, and the knowledge

soon proved valuable. He hastened to Dr. ——— who wanted to know where the three teeth were, and sent a messenger back to the place, recovered the teeth, and reset them in their proper place in Mr. ———'s mouth. That was a skilful piece of dentistry and speaks well for Dr. ———'s ability."

**Value of  
Early Education.**

Should this list be continued to completeness, how many names would it contain that are illustrious? How many that will live in the annals of dentistry? What percentage who are competent to adorn a liberal profession? And for the benefit of the utilitarian, what proportion who pile high the golden shekels? Shade of Evans, answer! How many who render adequate services to their customers? How many who have accepted the bequest of the pioneers with its duties as well as its emoluments? Read the answer where the sixth year molar was; read it where the interdental space is no more. Read it where the incisor's brazen mail glitters in the unguarded smile, where pearly beauty is shrouded in gold. Read it where occlusion, once in poetic symmetry, charmed the vision of him who loves nature's matchless unions of use and beauty. Read it where the crown of gold presses down like a crown of thorns; where the silver filling is muffled up high in gingiva all red and gory, and the wooden toothpick reposes side by side with remains of feasts of other days. And there are many personalities and mentalities in which some things may be read. The vanity of the fool amuses, and the egotism of the ignoramus disgusts, but it is in the falsity of the average advertisement that the greatest villainy lies.

That the grade of men who practice a profession is an enormous factor in its prestige, no one, perhaps, will question. That our profession has its constellation of magnificent examples of well rounded intellects and characters, is happily beyond the shadow of a doubt, but that the average is commensurate with the comprehensive duties to humanity, which should rest with such solemnity upon him who would pursue this calling in this century, is, unfortunately, equally untrue. Too often

"The primrose by the river's brim,  
A yellow primrose (is) to him,  
And it (is) nothing more."

However brilliant the exceptions, it is the trained man whose membership in this profession elevates it. The careers of men who began late in life to educate themselves, instead of standing as examples of the uselessness of early training, are magnificent arguments for its necessity. Who, in manhood, would force himself to the labor of a child, in the ab-



## ITEMS OF INTEREST

sence of a burning realization of its need? Broader education, culture and refinement are crying needs of this hour. The figure of the unlearned man, floundering around in a learned profession, is an advertisement sufficiently bewildering to him who would see dentistry exalted; but for the very quintessence of the grotesque give us that festive professor whose fantastic grammar reminds us of an advertisement on the door of a school house in Cuba, soon after the American occupation, "Speech Americanos taught here."

"Revolutions sweep  
O'er earth like troubled visions o'er the breast  
Of dreaming sorrow; cities rise and sink,  
Like bubbles on the water; fiery isles  
Spring, blazing from the ocean and go back  
To their mysterious caverns; mountains rear  
To Heaven their bald and blackened cliffs, and bow their  
Tall heads to the plain; Empires rise,  
Gathering the strength of hoary centuries,  
Startling the nations; and the very stars,  
Yon bright and burning blazonry of God,  
Glitter awhile in their eternal depths,  
And like the Pleiad, loveliest of their train,  
Shoot from their glorious spheres and pass away."

Yet that Pierian spring sends its holy waters down through the ages—the dark ages—all the ages—to enrich the human mind and chasten the human conscience.

**Women Always**      It has been said that women should not be den-  
**Ethical Dentists.**      tists. Be this as it may, no woman has yet applied  
for license in Alabama whose papers did not bear  
unmistakable evidence of a keen interest in, and a  
fine understanding of, the science and the art. Ethics and aesthetics and  
asceticism, like all else that appeals to the finer feelings and leads toward  
the higher things of life, are peculiarly and beautifully congenial with  
her chaste and noble nature, and a woman's name at the head of a dental  
advertisement is unheard of, for she loves her profession, and the spirit  
of treason finds no resting place in her loyal heart.

"No, the heart that has truly loved never forgets,  
But as truly loves on to the close,  
As the sunflower turns on her god when he sets,  
The same look that she turned when he rose."



**Responsibility of  
Colleges and  
Examining Boards.**

To educate a number of young men would require, under the most favoring auspices, a number of years—some would say, with Oliver Wendell Holmes, several generations. But to select them educated would not require so long a time. Who stands at the outer gateway of dentistry, and who at its threshold? Need I say, College, Examining Board? To claim that all the elements of pseudo advertising are traceable to either or both of these institutions would be but the veriest absurdity, but that a generous share of it is theirs is true beyond cavil. That an alarming proportion of untrained men pass both these outposts is a fact which, however disgusting to those who have pride in the calling and sympathy for suffering humanity, is too patent to be questioned by anyone reasonably conversant with the facts. Once a member of an examining board stated on the floor at a dental convention that the fault lay at the college door. A member of the faculty asked why boards did not stop them. The truth and force of his intimation was so clear and plain that no one replied.

It has been said that comparisons are odious, but emanating from a bosom teeming with reverential memories of Alma Mater and respect for worthy kindred institutions, this one should not offend the most sensitive. Examining Boards have three or four days in which to determine the qualifications of students. Colleges have three or four years. Then, when untutored men pass the Rubicon, who, in the light of calm reasoning, are more at fault for the pseudo advertising which so certainly follows, in one form or another? An ignoramus engaged in the practice of dentistry, however good may be his intentions and however extensive his technical knowledge, even scientific knowledge, if you please, is an advertisement that is certain to create the impression on intelligent minds, and on others, that dentistry is no learned profession. The fact that John Smith could not pass the preliminary examination and was not allowed to matriculate would be another form of advertisement, and a most effective one.

Think not that the desire is to shift any responsibility from either of these institutions to the other. Our colleges! They are our shrines. "The hand that rocks the cradle rules the world." "A mother (once) is a mother still, the holiest thing alive." The examining boards have wrought great good to the profession through their influence on students and colleges, and have played a part second only to these institutions in the advancement of the requirements which has resulted in the curriculum of to-day. But in the discharge of their duty—vicarious duty, they have not always, not frequently enough, freed themselves from the force of that hallowed thing which men call sympathy, and followed the sterner dictates of that grander thing known as justice. However extravagant this may



## ITEMS OF INTEREST

seem to the uninformed, there are men holding licenses and diplomas today who could not write the words on them with the documents before them, even if that would prevent the recall of these instruments. There are men practicing today who have failed utterly and miserably in every branch of the science of dentistry, but had a little manipulative ability and great persistency in their efforts to obtain licenses. Sympathy is a human attribute that is well nigh divine, but these examinations are of a judicial character, and are the outcome of an effort on the part of the law, in her majesty, to protect her subjects; and justice should be done, though the heavens fall. Sympathy justly pervades the very vitals of our practice, but pseudo advertising follows inevitably its supremacy over right.

-When members of faculties and examining boards issue diplomas and licenses to absolutely incompetent men, they become guilty of high treason to that suffering humanity which it is their vicarious duty to protect. They dip their pens in human blood and write grim chapters in the rubric of the forcep.

• Once a dentist spoke of another as a politician, and nothing in his manner or mien betrayed any especial respect for our variety of that ubiquitous gentleman.

A dentist asked who his dentist was, gave the name of one of his friends. The patient who had asked the question replied that he had no big practice. He answered that if he had not it was not due to any lack of ability for he was one of the best in the community. A lady attributed to a dentist intelligence, refinement and sacred respect for her sex, but questioned his professional ability. The wife of a dentist replied that she fully agreed with her as to her former statement, but she was sure she was mistaken in the latter, as she had heard her husband speak of him as one of the ablest of his profession. The little daughter of a dentist, hearing disparaging remarks concerning a dentist, remarked that her father would have a fit if she should say such things of one.

There is a certain chivalry that awaits not battle hymn nor trumpet blast to wake to life and fire. There is a certain asceticism that is so diffused into a generous conscience as to become a part of its ethics. Returning from Manila, Dewey was the object of the greatest ovation ever accorded a sailor. Marshall, attending the meeting of the National Dental Association after his appointment as army dentist, was greeted by the most complete ovation ever accorded a dentist by dentists. In his sphere in human affairs he is as knightly a spirit as the great Admiral in his. Every soldier of Alabama's National Guard, while on duty, every convict, every prisoner, every pauper and every insane being dependent on the State for medical attention, is entitled to, and should have den-

tal services furnished by it also. Every applicant before the Board of Dental Examiners of Alabama should have the right of appeal from its decision. Every victim of malpractice in dentistry should have provided legal means for the punishment of him to whom belongs the responsibility for it. And the same glorious spirit which took the gallant Marshall to the lobby of the nation's capitol, swells in many bosoms here today. May Alabama lead her sisters in this line of progress.

My brothers, ability is the head and the strong arm of dentistry but the professional spirit is its conscience. It is to it just what virtue is to human society, just as a blow at it is a stroke toward return to barbarism, so a blow at our *esprit du corps* is a stroke toward that retrograde metamorphosis that would bear us backward toward the trade of early days. A strenuous era is upon us. We cannot rest in safety on laurels won for us by the fathers that are gone, nor bask in the light of illustrious contemporaries: Verily, vandal shadows hover over us today; and the man with folded arms invites their gloomy presence. Vestal and vandal hand contend for supremacy.

Say not to me, "False wizard, so preach to the coward!" for 'tis but the "solid angularity of facts" that I do press upon your pride. Rome, great Rome, enriched by the spoils of war and the arts of peace, sat upon her seven hills with the treasures of the world in her lap and called herself eternal. Her soldiers, hard from camp and march and battle, became the prey of inertia and the sedulous charms of luxury. Through her imperial gates, in exultant pride, rode Goth and Vandal.

This question of advertising is a burning one in dentistry today. Verily it threatens the consummation of its divine mission to the human family. False advertising is more ruinous to it now than it has ever been. But exactly proportionately is true advertising more beneficial. The public mind is more skeptical than ever of deception by the innumerable devices by which it has been lured from the beaten paths of trade and service. If a vicarious duty ever developed on the leaders of thought and the moulders of opinion in any calling of man; such a duty is heavily upon such members of ours today, and in exact proportion to gifts and ability. And altruism is not your only incentive. You are face to face with one of the first laws that ever appealed to man, self-preservation. Come forth ye great, come forth ye brave, that we may follow and drive away that sickening apathy which, like a deadly blight, comes over the councils and the labors of the brave, and raise the vision of the pessimist to that real goal which lies beyond the sordid vision of freebooter and buccaneer—that solid recompense that comes in peace and honor and gold to those who are guided by eternal faith in the ultimate prevalence



## ITEMS OF INTEREST

of right and the final triumph of justice. Let him who would truly advertise *do* the things that he who would falsely advertise claims to do. The hideousness, the littleness, the weakness, and the baseness of falsity are revealed all the more glaringly in the presence of the "beauty, the grandeur, the power and the majesty of truth." Logicians of an hour may preach the fevering doctrine of "Americanitis," but he who looks to the past for his prophesy of the future knows that the law of compensation is not a creature of human desire, but is founded deep in the eternal fitness of things, and though oftentimes diverted, it ever resumes its calm and steady course, as water returns to its level.

Should the claim be made that we are members of a liberal and learned profession, many would admit and doubtless some deny it. What is a liberal and learned profession? A liberal profession is one whose votaries recognize the equal rights of prince and pauper to their services for the relief of human suffering, and serve the latter as freely as time and means may permit. If our judgment fails us not, a learned profession is one to the practice of which learning is necessary; and it is to liberality and learning that we must look for prestige—our safest and most potent advertisement—that prestige which comes not of parade of knowledge but of "march of intelligence."

He who trains and broadens his mind on subjects other than those leading to the central avenues of his profession and cultivates his intellect and refines his feelings, is the man who will bring worth and honor to his vocation, for every ray of intellect that illumines the affairs of men advertises the calling to which its author belongs. Assiduous application to each and every detail of every case entrusted to us, and the stubborn determination to do our best—our very best—for all whom we serve, may seem to the superficial mind a complete fulfilment of our vicarious duty, but he who looks deeper into the true inwardness of things, sees it as only partially so. Honest, intelligent and strenuous services have never yet remained long unrequited nor failed to advertise him who renders them. Yet this duty extends further—we must improve every opportunity that our best may be worthy our calling and our claims. We must enlighten our clients as to their duties to themselves and their children and bring back to the term *doctor* its ancient and primal significance. Thus may we strengthen and broaden our consciences as dentists and as men, and draw nearer and nearer the ideal of things and the realization of our dreams, with the passing of the years.

Dentistry needs men as well as dentists. A dentist said of a dentist, "He is a learned dentist—he is a polished gentleman." The greater the proportion of whom this can be said the higher and nobler will be her standing among the specialties of her mother profession. Of the "pre-

cious porcelain of human clay" endowed by nature with rare mental powers and by environment and application and the precepts and examples of honorable and cultured parentage with that education and refinement which not alone maketh the mind great but also maketh the heart good, a dentist and a man graces a chair in a dental college, and a practice in a cultured community. In this personality lives and moves and has its being, a classic advertisement, chaste and beautiful.

Oftentimes does the human heart, in its tranquil and better moments, return on Memory's airy pinions to the sacred realms of early environment and early days, and the human mind strive by imitation for its gratification. The queen of a Babylonian king longed and wept for the beautiful scenes of her native Judean hills; and, behold the Hanging Gardens of Babylon, one of the seven wonders of the world.

Sandstone and Parian marble each has its place in the great material economy of civilization, but the former is not interchangeable with the latter. Chisel it, form it as you may, it will not to beauty grow, and finer things beside, its texture ever will reveal. The tare of the fields drinks as freely from earth's generous bosom as drinks the wheat, but tare is tare and wheat is wheat.

Were it a fact, beyond the presumption of debate, that all who are allowed to cross the thresholds of dental colleges are taught and trained exactly as they should be, and the customs of selection the same as now, the need of the fine Italian hand would still be a great and crying one, and the sin of universal acceptance the cardinal curse of this calling.

Ere our glorious destiny can be entirely attained; not alone must those requirements which are embraced in that comprehensive term *education* be demanded, but gentility and conscience; and taste and bent for the good and the beautiful—the artistic temperament. Nature sets a seal on the brows of the choicer of her children, and he who will may read.

Some of our institutions of learning, disgusted by the hideous and menacing spectacle of the pseudo advertiser, have inaugurated measures for the suppression of this professional degradation. A Canadian college requires its graduates to sign an agreement consenting to their names being stricken off the rolls of the said college in case they shall be guilty of advertising or other unprofessional conduct. Let us hope that the laws of Canada will recognize the right to revoke these diplomas under this agreement, and will annul all licenses dependent on them. One of the universities of our country exacts an obligation ending thus: "I will strive to deport myself in such a manner as to claim the respect of the public, the good-will of my co-workers in the profession and the continued esteem of my instructors and fellow graduates. If at any time I



## ITEMS OF INTEREST

should fail so to act, I shall expect to forfeit all claims to personal or professional recognition by my Alma Mater."

Forfeit all claims to personal or professional recognition by my Alma Mater!

"How cruelly sweet are the echoes that start  
When memory plays an old tune on the heart."

Foster mother!

"Oft in the stilly night, ere slumber's chain has bound me,  
Fond memory brings the light of other days around me;  
The smiles, the tears,  
Of boyhood's years,  
The words of love then spoken;  
The eyes that shone, now dimmed and gone."

Fellow dentists, this is a hallowed theme and in a hallowed place. Why swell so many bosoms with this "glorious throng of happy dreams?" Echo says, "Assembled here are so many whose hearts have never known one throb not in the unison with the honor and the glory of our chosen calling."

Again, all honor to those colleges that burn the Vestal fires, that for us so much have done, yet for us so much can do. Though but fifty and five they can advertise us more than the twenty and five thousands of practitioners of our country. May each succeeding year bring to their fires more of the "porcelain clay of human kind," and may fewer shafts, with their own plumage fledged, return to quiver in their breasts maternal.

All honor to our journals, vicars of our calling, that train the searchlight of science on our path of progress and "change the pebbles of our puddly thoughts to orient pearls." All honor to our societies, Meccas of our minds and hearts, that bring us thus together, where naught is mine and nothing yours, but all to *us* belongs.

"Far from mortal cares retreating,  
Sordid hopes and vain desires,  
Here our willing footsteps meeting,  
Every heart to heaven aspires."

Glittering beacon lights that gem the starry dome of our sanctuary, builded by you and by us, guarded by you and by yours, pale not a ray nor a luster spare but over this pathway to destiny shed thy holiest light

eternal. Radiant trinity of our stars, to you and to us has this duty come. Let us meet it bravely, meet it proudly.

“Onward and ever on,  
Till the voice of despair is stilled,  
Till the haven of rest is won,  
And the will of (Fate) fulfilled.”

---

## **The Advantages of Hand Pressure in the Introduction and Condensation of Cohesive Gold Fillings.**

---

By ALONZO MILTON NODINE, D.D.S.

*Read before the Second District Dental Society, March, 1903.*

---

It is admitted by most operators that hand pressure possesses not a few advantages, but that this method also has its distinct disadvantages. The question naturally arises, are the advantages of sufficient value for it to be used in preference to the automatic mallet, in a majority of cavities, and in the major part of nearly all cavities? The attempt will be made to answer this question.

First. Gold may be packed into undercuts with less liability to displacement.

Second. Gold may be lapped over the cervical margin of a cavity, getting closer adaptation, with less liability of fracturing the enamel.

Third. Gold may be more closely adapted to the irregularities of the surface of the tooth structure.

Fourth. Gold may be condensed over cement cappings and linings with less danger of fracturing the cement.

Fifth. Gold may be condensed against frail walls with less danger of fracturing them or checking the enamel.

Sixth. Gold may be packed in cavities not accessible to the automatic mallet, particularly disto-approximal cavities in molars and bicusps.

Seventh. The danger of displacing a filling by a misdirected blow is much less.

Eighth. The jar upon the tooth and patient is not nearly as severe.

Ninth. Hand pressure can produce a filling nearly as dense as one



## ITEMS OF INTEREST

made by mallet force; often one equally as dense and again others that are even denser; this depends upon the operator and the form of gold.

Tenth. The gold remaining more cohesive, there is less flaking of the gold.

The statement has been made by several authorities that cohesive gold fillings inserted by hand pressure in holes in a steel plate are not as dense as those made by mallet force.

Here are two fillings, one inserted by hand pressure, the other by the automatic mallet, using the same form of gold. The filling made by the mallet was composed of smaller pieces of gold. (Exhibits fillings.)

These advantages result from the fact that in condensing the gold there is no sudden impact to spring the gold, no penetrating blow to pierce the gold and injure the margins; instead there is a steady pushing and rocking motion that works the gold into the inequalities rather than driving it in.

In a paper written by Dr. Black and published in the September *Cosmos* of 1895, are the results of a series of experimental fillings, made by several operators using different methods.

There were but two operators that used cohesive gold and also used mallet force in one cavity and hand pressure in the other.

Dr. S. inserted three fillings, one using hand pressure getting a specific gravity of 12.

One using the automatic mallet (each piece of gold receiving twenty-five blows) specific gravity of 12.5.

One using the automatic mallet (each piece of gold receiving fifty blows) specific gravity of 14.0.

Dr. H., using hand pressure, getting specific gravity of 16.9; using hand mallet (50 blows upon each piece of gold) specific gravity of 17.4.

Dr. Black read a paper January 21, 1896, before the New York Odontological Society, in which were given the results of other experimental fillings.

There was but one operator using cohesive gold, who also used hand pressure in one cavity and mallet force in the other.

Dr. J. F. P. Hudson produced with hand pressure, using Watts's gold, a filling have a specific gravity of 17.76, and one with the automatic mallet getting a specific gravity of 18.05.

Dr. Johnson, in his work on "Operative Dentistry," says of fillings inserted by hand pressure: "While they are not as dense, they usually succeed in saving the teeth. They do this by reason of good adaptation to the cavity walls." Further he says, "It is not the hardest worked gold filling that is always the best, but the one most closely filling the walls of the cavity and which is the most uniformly packed."



Dr. Ottolengui in "Methods of Filling Teeth" says, "The greatest good gained by hand pressure is that the gold remains more cohesive under hand pressure than in connection with any other. The more gradual the pressure exerted upon gold foil in condensing it the less it loses its quality of cohesiveness, and vice versa, the more sudden or rapid the blow of the hammer, the less cohesion will be exhibited."

Dr. Louis. Jack in the "American System of Dentistry" in mentioning the three steps in condensing gold by hand pressure says, "The third movement is one of leverage, which, being one of the powerful mechanical forces, is more efficient in effecting consolidation than the greatest amount of direct force applicable could be.

It has been shown that great force is not needed to bring about the cohesion of gold when it has been correctly prepared.

The gold is laid upon the part with some direct pressure, which is immediately followed by a tilting or rocking movement of the instrument. This produces leverage in which one corner of the instrument is the fulcrum and the other coming down with energy, overcomes the irregularities of the surface and also produces contact and therefore union.

---

## Porcelain Corners Retained by Porcelain Pins.

By JOHN M. BYERS, Brooklyn, N. Y.

*Read before the Second District Dental Society, March, 1903.*

---

Probably in no other position in the mouth do the æsthetic qualities of porcelain fillings appear to such advantage as when used to restore the contour of an incisor; and in no other class of porcelain fillings do we meet with more difficulties of retention. The shallow depth to which the matrix can be forced limits the distance to which we can carry our porcelain body. So in proportion to the depth do we have weakness or strength. Therefore, it is good reasoning to assume, that if we can get a deep, solid mass of porcelain in the form of a pin, or block, within the tooth—this pin to be part of the filling and homogeneous with it—we will have a filling that will hold, and withstand more than the ordinary stress of mastication—provided it is perfectly made and properly articulated. Let me add that no such filling should ever be allowed to come in actual contact with the occluding tooth.

I think you will agree with me that a solid porcelain pin, of sufficient thickness, has greater strength than any *platinum* pin or bar that can be



## ITEMS OF INTEREST

baked in. With this idea in mind let us proceed to make a corner filling—with a big, thick porcelain pin—that will hold it in place against all the heavy strain to which its exposed position subjects it. We will assume that an upper central incisor presents with a broken corner involving one-quarter or more of its labial face.

Having obtained a good separation, apply the rubber dam to at least three teeth, obtaining plenty of room to work the matrix: I am aware that some operators do not think it necessary to use rubber dam for porcelain work; but the saving of time, inasmuch as you are not obliged to continually dry the cavity, will alone be reason enough, to say nothing of the fact that cement must have considerable time to dry before exposure to the saliva.

First take a medium garnet paper disk, and cut the edges down until they are flat and true, making a sharp angle with the labial and lingual faces of the enamel. All bevel edges must be sacredly avoided; a flat, even surface is the very foundation of our filling. We will now deepen the interior cavity; take a new bur and cut into the dentine, being careful not to overheat the tooth, and carry the excavation to its greatest possible depth. Cut on perfectly true, straight lines, so that the cavity when completed may present without the faintest suspicion of an undercut. If you will be careful not to overheat by the rapidly revolving bur, and apply a drop of pure carbolic occasionally, you can deepen the cavity to a surprising degree. Always use a new sharp bur.

We will now take a small sheet of platinum and burnish it into the cavity in the usual way. We find that the platinum can be carried in a short distance only, when we come to a point where, if we burnished any further, we would puncture the matrix. Do not go any deeper, but otherwise complete the matrix, carrying it well over the edges, and be sure there is no rocking.

Return now to the interior. We have forced the platinum foil as far as it will go; take a ball-burnisher and push it right through the foil into the cavity beneath. Break right in and dress the foil up against the cavity walls. This is the primary matrix. Being satisfied that the adaptation is perfect, carefully remove and lay it aside, and take up the construction of the secondary matrix. Cut an orange wood stick to fit the cavity as perfectly as possible, smoothing it with a fine disk, and if made with care it will serve as an excellent model upon which to mold the secondary matrix. Fold the platinum about the end of the wooden model, turning in the ends, very much as you would do up a paper package. Loosen this platinum cap and carry it to place in the cavity; it will be

found to fit fairly well, and the burnisher will complete the adaptation. Allow a slight overlapping at the opening.

**Fusing the Porcelain Pin.** Being properly adapted, remove, fill with porcelain body and bake. Fuse a very small portion of body at the bottom first, and gradually build it up, stopping a little short of the opening. When this baking is complete, we have, what in the finished filling will be the pin. The primary matrix must now be replaced, then take the secondary, containing the porcelain pin and carry it into place, forcing it through the primary until it fits properly. Burnish the narrow edges of the secondary matrix down to act as a flange.

Both may now be removed together using special care, and proceed to build up the contour and bake in the usual way. When completed and the platinum stripped off you will have a porcelain corner, reinforced by a strong serviceable pin, and it should fill the cavity so perfectly that only the thinnest cement can be used for the setting. For this class of filling I like to use platinum for my matrix, with the Jenkins body. The first button on a Hammond furnace will give all the heat necessary for fusing. It may be of some assistance to invest the secondary matrix, although it can be handled without. However, after the filling is well under way, I prefer to work without investment, so that the piece may, from time to time, be put into position in the cavity, to inspect the edges and verify the contour. These fillings may be made quickly, but we should give to each individual case all the thought and time necessary; and thereby give better service to our patients, and enhance our own reputations as operators.

---

## **Retention of Porcelain Inlay Restorations Including Angles of Incisors and Proximal Marginal Ridges of Bicuspid.**

---

By JULES J. SARRAZIN, D.D.S.

*Read before the New Orleans Academy of Stomatology, New Orleans, May 27, 1903.*

---

In the use of a porcelain inlay for the restoration of the functional part of a tooth, it is requisite in order that it may be retained while resisting the stress of mastication that we adopt the same fundamental principles as have been advocated for metal contours. The adhesive properties of cement may be relied on where little morsal stress occurs. The



## ITEMS OF INTEREST

quality of greater resistance will be needed to withstand severe force. It is true that oxy-phosphate alone, is utilized for compound fillings, regardless of any specially retentive form to the cavity, but it is likewise true that incisors frequently present with cavities of great depth where the floor at some portion may be wider than the orifice, and that compound cement fillings in molars, where the shape of the cavity is not retentive, will sometimes be dislodged by severe strain. It is now generally conceded by the most skillful and scientific operators in this country that successful restoration with metal, involving functional portions of the tooth must depend on the step formation of cavities, and on perfect molecular cohesion, whether the fillings be of gold or amalgam. Moreover success in this class of work can only be obtained by full contouring of the contact points at or near the incisive portion of the teeth, so as to protect the soft tissues against irritation and the hard tissues against the results of impaction of food debris and lodgment of oral fluids. Full contouring necessarily requires adequate retention. These correct principles are as necessary in porcelain contours as where metal is used.

### **Method of Retaining Porcelain Corners.**

These considerations have led the writer to the practice of a system of retention for porcelain inlays, founded upon the same requirements as those for metal, in order that there may be no hesitation in fully restoring contour. Nor is there any danger, if the work be carefully done, of weakening the porcelain itself. It may be that some writers on this subject are correct in claiming that even incisal angles, or marginal ridges of bicuspid and molars may be retained simply by deepening the cavities in live teeth; by etching and grooving the cavity as well as the surface of the porcelain inlay, and by relying upon the adhesion of the cement without resorting to pulp devitalization in order to gain greater depth to the cavity. The latter method is at least open to the objection of unnecessary and dangerous approach to the pulps in order to produce means of retention, which apparently offers but little safety for extensive contours. Again it has been advocated to retain the contour by means of a staple of iridio platinum wire baked in the inlay, extending from its inner surface into the deeper parts of the cavity. This may be quite satisfactory in pulpless teeth, but when dealing with vital pulps will either become open to the same objection as above outlined, or will result in dangerous thinness of the porcelain itself. There appears to be good reasons for preserving, whenever possible, the vitality of teeth, especially when using porcelain. The inlay will not change color beyond receiving the superficial stains characteristic of the mouth, and this will only serve to make it more harmonious with the natural organs. On the other hand, the pulpless tooth will at least to some extent change color, or it

will appear to do so on account of losing the translucency which is characteristic of its vitality; thus the inlay, which was well matched originally, will in time be conspicuous on account of the difference in shade.

Bicuspid and molars frequently present conditions of caries which will permit the step formation of cavities, the occlusal dovetail of the inlay being constructed of porcelain of sufficient breadth and thickness for safety, especially if the occlusion is properly studied before the cavity preparation, in order to avoid strain at or near the occlusal margins. This can be done by extension of the cavity when necessary.

The method which I will now describe is primarily applicable to incisors but may be used in bicuspid and will furnish the necessary degree of retention to resist the stress of mastication for restorations of any size without danger of encroaching on the pulp by deepening the cavity and without weakening the inlay, provided the latter be properly constructed.

A groove is cut horizontally in the lingual surface of an incisor not nearer than three thirty-seconds of an inch from the incisal edge. In this groove is fitted an iridio-platinum wire about twenty-three gauge. The wire is bent in a labio-gingival direction as it emerges from the groove into the approximal portion of the cavity, without approaching the axial wall of the cavity nearer than one forty-fifth of an inch, at any part. The extremity of the wire which is to be inside of the porcelain is well rounded as is usual in such work. It is bent so as to permit a strong thickness of the porcelain between itself and the axial wall of the cavity, the object being that the porcelain surrounding the wire shall be thick enough to resist stress. A good cervical seat should be provided.

Some conditions of occlusion will necessitate the placing of this lingual horizontal groove a little farther than three thirty-seconds of an inch from the edge of the tooth, in order to avoid the impact of the incisal edge of the antagonizing tooth at or near the margin of the filling, so as to eliminate the danger of dislodgment by the stress thus brought to bear. The portion of the wire entering the groove of course is not covered with porcelain. The inlay thus made, is cemented in the usual way. At some subsequent sitting the cement in the horizontal groove is burred away and replaced with cohesive gold. For obvious reasons the incisal step cavity which should be typical if the restoration were of gold is not utilized for porcelain, the horizontal lingual groove being used instead, because a compromise must be reached between the resistance of the filling as a whole and the strength of the porcelain itself. The same pulpal inclination toward the extremity of the floor of the groove should be produced as in metal work. For a proximo-occlusal contour where the step cannot be made of porcelain, a similar groove for the reception of the wire may be cut into the sulcus of the bicuspid thus offering sufficient resistance



## ITEMS OF INTEREST

without endangering the tooth and permitting correct restoration of the contact. The grooves must be cut to some depth for the retention of the wire in bicuspid, so that a thickness of nearly one-sixteenth of an inch of porcelain may exist between the morsal face of the filling and the point of entrance of the wire into the body of the inlay. Such depth of the step is not objectionable being cement lined and covered with gold. A good cervical seat is necessary.

The writer places little reliance upon the resistance of the bicuspid porcelain filling with a V-shaped morsal end held alone by the adhesion of the cement, when exposed to a strain of mastication. Similar construction with gold would result usually in the fracture of one or more of the morsal angles, dislodgment of the filling or at least in fracture of the enamel margins of the cavity. In the use of porcelain these accidents, with the exception of the dislodgment of the filling, would not perhaps be invited as there would be no under cutting in the buccal and lingual cavity walls. In spite of the cervical seat the resistance of the filling however would merely depend upon the adhesion of the cement and with a V-shaped morsal opening this would be a poor reliance. A reliable adhesive surface requires that the cavity increase mesio-distally in the morsal third in direct ratio to the size of a contour and the reverse is the case in applying to cuspid, bicuspid and molars.

---

### About Gold.

By H. H. BOOM, M.D., Philadelphia, Pa.

*Read before the Central Dental Association of Northern New Jersey.*

Every dentist is well acquainted with the dental forms and applications of gold, so we will consider gold in its relations to metallurgy.

Gold was one of the earliest metals made of practical use. It exists in nearly all regions, but in small quantities. The important discoveries of considerable deposits of gold have all been made within the last fifty-five years. Mr. Marshall, while erecting a saw mill upon Captain Suter's estate, on the Sacramento River, in September of 1847, found gold mixed with the sand in the newly constructed mill race. Mr. Hargraves discovered gold near Bathurst, New South Wales, in April, 1851. More recently the Transvaal, and the British Columbia and Klondike regions, have yielded a large increase to the annual production of gold.

In 1899 Australasia produced gold to the value of over seventy-nine million dollars; Africa over seventy-three million; and the United States seventy-one million; the remainder of gold producing countries about one-fourth as much.

**Gold in its Natural State.** Gold occurs chiefly in the metallic state called native or virgin gold. Wherever gold is found, its origin can generally be traced to quartz veins occurring in granite, porphyry, clay slate, green stone or gneiss rocks. While imbedded in the rock, the octahedral forms of its crystals can often be seen. Through the disintegration of the rock, by natural causes, the imprisoned gold is finally washed into water courses, and, from attrition, its angles are rounded and its edges smoothed. Such fragments of gold from their great weight lie on or are moved along the beds of streams. When such particles weigh less than half an ounce, they are called gold dust, while to the larger masses the names nuggets or pepites are given.

In some instances gold occurs in extremely thin flat scales, which are suspended in water, floating along in rapid currents. Such gold is called float gold.

A natural alloy of gold and silver exists in considerable quantities. The important mineral containing gold is the compound of tellurium and gold, often yielding forty-two per cent of gold. Gold often occurs mixed with sulphides of other metals, as of iron, lead and copper. Such combinations are known as sulphurettes.

**Mining Gold.** The extracting of gold from its ores is performed by one or other of the processes known as placer mining, hydraulic mining, quartz mining and the chlorination process. In placer mining we depend upon water to effect a separation of the gravel, soil, etc., from the heavier gold particles. In this work we may use the pan, cradle, tom or sluice. Hydraulic mining employs powerful jets or streams of water projected under pressure from the nozzle of a hose upon banks or cliffs of gold bearing gravel, washing the mixed material into sluice boxes in which separation takes place.

Quartz mining subjects the rock in which gold is imbedded to the action of the stamp mill; the fine powder resulting is then washed with water to carry away much of the comminuted rock. Then mercury, containing a small quantity of sodium amalgam, is added to the residue, when the resulting amalgam of gold, first compressed, then distilled, yields the metal gold.

In the chlorination process, the gold ore is roasted with salt in a reverberatory furnace. The resultant mass is moistened with water,



## ITEMS OF INTEREST

placed in a wooden tank and subjected to the action of chlorin gas. Water is then added, and the freshly formed gold chloride dissolving in the water forms a solution from which pure gold precipitates on adding ferrous sulphate.

### **Assaying.**

The value of any specimen of gold is determined by an assay. A small chip is cut from the gold, subjected to hydraulic pressure and rolled into a ribbon, from which a piece weighing exactly one gramme is cut. This piece of gold has added to it a known weight of silver and of copper, and the three metals are then wrapped in a weighed quantity of sheet lead and the bundle placed in a bone ash cupel and heated in a muffle furnace until fully melted. If any copper or lead are present in the sample of gold, these metals will combine with the copper and lead that have been added. These metals, copper and lead, then oxidize, and the lead oxide serves to keep the copper oxide dissolved, and both oxides gradually sink into the material of the cupel. Left in the cupel we find a button of two parts silver to one part gold. This button is rolled out into thin foil, or it is allowed to fall while melted into water to form thin spiral like shells or granulations. This alloy is now boiled for ten minutes in nitric acid of 32° Baume, and then in fresh acid for another period of ten minutes. The liquid will contain all of the silver, which the nitric acid has dissolved from the alloy. The residue is washed several times with water and then is weighed, and as one gramme of the specimen of gold was operated upon, the weight now obtained indicates the quantity of pure gold present.

In this assay of gold it is the custom to ascertain the proportion of silver present originally. This with the proportion, by weight, of base metals, copper, lead, etc., can be obtained by the following calculation.

The loss of weight of the mixture, after heating in the crucible, shows the weight of base metal. The loss of weight after action of nitric acid indicates the weight of the silver. The fineness or proportion of pure gold in the article subjected to assay is now stamped upon it.

Bullion is selected, each piece having about the same fineness, and enough pure silver is added to form, when melted, an alloy of three parts silver with one part gold. This alloy is granulated in shell-like forms by dropping it while hot in water, or it is cooled and rolled in thin ribbon and bent into cornets. Then two hundred pounds of this granulated alloy is placed in a larger flask, and to it about one hundred and fifty pounds of sulphuric acid is added and the mixture boiled for three hours, during which time about two hundred pounds of sulphuric acid has been added to replace that which is lost. This acid, which will have dissolved the silver, is now siphoned off and from it the silver is extracted.



Another charge of one hundred and fifty pounds of acid is now added to the bullion and boiling continued for one hour and a half, when this acid is siphoned off. A further supply of fresh acid is added and the fire raked away. The gold is now ladled from the acid, placed in small kettles and heated for six hours longer, during which time the acid is changed three times. The gold is then washed, once with cold water and twice with warm water. The gold is then pressed in a cake called a cheese. These cheeses are dried in an oven, then melted and cast into bars and will assay as high as 998.5 fine.

Chemically pure gold is obtained by dissolving refined gold in aqua regia, diluting well with distilled water, adding oxalic acid, washing the resulting crystals of pure gold well with water.

Gold is yellow by reflected light. When thin films of gold are examined by transmitted light, they are green or blue in color. If extremely thin films of gold, obtained for instance by floating gold leaf on solution of potassium cyanide, be examined, they transmit a violet or ruby red color. If such a thin film of gold be taken up on a glass plate, it will still appear yellow by reflected light, but if heated to 600° F. it then becomes ruby red, and if pressed by a hard substance, it turns green.

Gold dissolves in selenic acid.

Gold dissolves in hydriodic acid and potassium iodide.

Gold dissolves in bromine water and atmospheric oxygen.

To determine approximately the carat of a gold alloy, nitric acid c. p. specific gravity of 1.52 will discolor any alloy of less than 14 carat. Nitric acid to which salt is added will produce a yellow or brown deposit upon a gold of less than 22 carat. We judge of the carat from the depth of tint developed.

---

## Liquid Oxygen.

By EUSTACE HAROLD GANE.

*Read before the Central Dental Association of Northern New Jersey.*

The subject of liquid oxygen is one of very great interest to all of us. The liquefaction of gases is a study which is comparatively in its infancy and liquid oxygen is an element about which but little is known,



## ITEMS OF INTEREST

largely owing to the fact that the cost of production is so great that it cannot yet be manufactured commercially.

The gas itself was discovered some 130 years ago, but was not known in its liquid form until within a few years ago, when Prof. Dewar of the Royal Institution liquefied it and exhibited the liquid before a very distinguished audience.

The subject of the liquefaction of gases has occupied the minds of chemists and physicians for many years and one of the earliest investigators was the celebrated chemist Michael Faraday, who, I believe, was the first to liquefy any of what, up to that time, were called the permanent gases.

<b>Method of Liquefying Gases.</b>	In the course of his investigations with chlorine he devised a very ingenious method of liquefying it, which is practically the same method, on a smaller and modified scale, as that used today in the liquefaction of other gases. He took an ordinary thick glass tube which he bent at about a right angle. In one limb he placed a substance which would generate the chlorine gas, and then heated it in a water bath; the gas was evolved with very great rapidity and accumulated in the other end of the tube, which was immersed in a freezing mixture; as he applied heat and the gas was evolved, the pressure became greater and greater, until finally, in spite of the fact that one end of the tube was hot, the gas liquefied in the other end at a temperature of about $20^{\circ}$ below zero.
--	--

That process, in a modified way, has been carried out with the different gases, using pressure and reduction of temperature in order to effect liquefaction.

For a long time after Faraday's experiments it was thought that pressure alone was enough to liquefy almost any gas and that if sufficient pressure could be obtained there was no gas which would remain as such when subjected to pressure. For a number of years this fallacy existed in the minds of chemists and physicists and they went to great expense in fitting up apparatus in order to subject gases to enormous pressure, and, although they got something which was apparently liquefaction, they were never able to produce liquid gases in any appreciable quantities until another English chemist, Andrews, in the course of some experiments discovered the reason. He found that for every gas there existed a point above which no amount of pressure would liquefy it. Take the gas of carbon dioxide, for instance. In spite of the fact that it has been subjected to enormous pressures this alone is not sufficient to liquefy it. Andrews found, however, that if he first cooled the gas a moderate pressure would liquefy it.

Andrews prepared a table, based on this discovery, showing just the temperatures necessary to apply to different gases in order to effect their liquefaction and after that liquefaction of various gases was comparatively rapid.

Up to about 1870 the only gases which succeeded in resisting the efforts to liquefy them were oxygen, hydrogen and nitrogen. In the early seventies two French chemists attempted the liquefaction of these gases by a method which afterwards proved to be the correct one. They first cooled these gases by ether and liquid sulphur dioxide and then subjected them to enormous pressure and, after allowing the gas to remain under that pressure for some time, so that the heat given out by compression was dissipated, they suddenly expanded these gases and claimed to have obtained oxygen and nitrogen in liquid form, and they even went so far as to declare that they had solidified hydrogen. But these claims were afterwards proved to be fallacious, because the experiments could not be successfully repeated.

The subject was taken up about four or five years ago by Prof. Dewar, and he was the first one to succeed in liquefying these gases on anything like a large scale, and to present the liquid gases in flasks and other vessels to an audience.

His process was similar to that of the French chemists, excepting that he applied the pressure more gradually. He erected a series of very strong steel cylinders connected with powerful pumps, each being surrounded by jackets through which ice cold water was allowed constantly to pass. In the first cylinder he compressed the gas under a pressure of about 1,000 pounds to the square inch. When anything is compressed a certain amount of heat is given out, as you will notice when you use a bicycle or air pump. Under this pressure the cylinder and the gas both became very hot, but by the use of the jackets and the ice cold water Prof. Dewar succeeded in keeping the compressed gas under a pressure of about 1,000 pounds to the square inch, at about the temperature of ice. When the necessary temperature was obtained a stop cock in the side of the cylinder was opened and the compressed gas passed into another cylinder where it was subjected to still greater pressure—about 1,500 pounds to the square inch—and again cooled in the same way as before; it then passed into a third cylinder where it was compressed under a pressure of some 2,000 pounds to the square inch, and again cooled to the freezing point of water. Then, as he could not secure any substance in sufficient quantities to bring the gas to the temperature pointed out years before by Andrews as necessary to liquefy it, he expanded it very rapidly into a large cylinder. In that expansion just as much heat was taken up as had been lost in the process of compression and cooling. The only



## ITEMS OF INTEREST

place where the gas can get the necessary heat to expand it is from itself; the cylinders are carefully insulated so that no heat can get to it from the outside and the enormous absorption of heat caused by the sudden expansion is sufficient to liquefy a portion of the gas. By this method Prof. Dewar succeeded in securing large quantities of liquid oxygen.

The expense of the experiment was very great and was defrayed very largely from contributions from different institutions in Great Britain.

The first substance liquefied was air which is composed, as you know, of about three parts nitrogen and one of oxygen. After he had succeeded in liquefying air he procured these two gases separately and succeeded in liquefying them in a similar manner.

In looking around for a simpler way of preparing liquid oxygen he found it could be done far more economically by fractional distillation, taking place at a temperature of about 210 degrees below zero. The nitrogen boils at about 15 or 20 degrees higher temperature than oxygen; consequently if liquid air is exposed in a vessel to the atmosphere it commences to boil immediately, the nitrogen passing off first and leaving in the vessel what is practically pure oxygen gas.

The ordinary cooling agents such as ice or carbon dioxide, are hot compared with liquid oxygen at 240 degrees below zero.

**Liquid Oxygen  
and  
Liquid Air.**

Take for instance alcohol, which is one of the most difficult substances to solidify, if it be placed in a tube and put in liquid oxygen it will almost immediately solidify, while sulphuric acid, another agent which it is very difficult to solidify, sets to a hard white substance in this liquid, and bromine, a suffocating poisonous gas, sets to a beautiful yellow solid which gives out no fumes and has no odor, at the temperature of liquid oxygen, and I might name a great many other substances which would behave in a similar manner.

Liquid air has been used as an explosive agent; if a porous substance, such as a piece of felt, be saturated with it and a match applied, it will explode almost with the violence of gun cotton, and experiments have been made with it on a small scale in coal mining. A saturated cartridge was placed in a drill hole, a fuse applied and the explosion is sufficiently violent to dislodge quantities of coal. The danger is said not to be as great as where dynamite is used, as there is but little flame, and the temperature is not nearly so great as occurs when an ordinary explosive is used. Owing to the difficulty of transporting it, however, I do not think it has proved commercially successful.

There are a number of striking experiments which can be performed with these gases. One which struck me particularly when I saw it per-

formed with liquid air demonstrated the difference in the actual amount of heat given out by a tumbler of water and a gas flame.

If an ordinary kitchen kettle is filled with liquid air and put over a gas flame, almost immediately the bottom of the kettle which is actually in contact with the gas flame will become coated with ice. If the kettle is removed from the flame and a glass of water poured into the kettle the evolution of heat caused by the mixture of the water with the liquid air causes an intense ebullition of the air, and vapor will pour from the spout and lid of the kettle and it will be emptied in a very short time, while the water which was poured in will be found as a solid lump of ice in the middle of the kettle; showing there is more latent heat in a glass full of water than in the flame of the gas jet.

**Medical Uses of Liquid Gases.** A subject of interest to dentists and physicians is the application of these gases in medicine and in dental surgery. A long series of experiments have

been conducted at the Royal Institution as to the effect of these extreme temperatures on micro-organisms and on living substances generally.

Bacteria, which you know are very resistant to a moderate amount of heat, are also far more resistant to extreme cold. A number of pathologic germs, such as the germs of typhoid fever or diphtheria, have been placed in nutritive solution and immersed in liquid hydrogen and kept there as long as twenty-four hours, so that the medium in which they were contained was absolutely solid, the temperature being 240 or more degrees below zero. Afterwards they have been allowed to thaw out and have invariably been found to come around all right, entirely unharmed by the extreme cold to which they have been subjected, which to most forms of organized life would be fatal.

Seeds of plants as well as micro-organisms have been subjected to this same extreme temperature and have been but very little affected, giving perhaps some support to the statement that seeds that have been found in the pyramids, having been there for thousands of years, have been known to germinate.

Liquid air has been used to some extent in the treatment of superficial skin diseases, particularly in some forms of epithelioma, and it is claimed with a good deal of success. The temperature is so low that the skin is frozen until it is as brittle as pasteboard and can be scooped out with practically no pain to the patient, the cold acting as an anesthetic and the operation being much more complete than if performed by the use of the knife alone.

As an adjunct to the use of nitrous oxide, liquid oxygen is familiar to you, not in liquid form, but in the compressed form that is supplied





commercially. I do not know that it would be of any great advantage to apply it in liquid form because it could not be kept any great length of time and its use for local application would probably produce a far greater degree of cold than is necessary in dental practice. The methyl and ethyl chlorides which have been used in dental surgery for producing anæsthesia by refrigeration have not been altogether a success and while it is possible to use liquid oxygen and obtain a still greater degree of cold with possibly more success owing to the fact the application of it can be more readily controlled, still I do not know whether that would be the case or not. That is a matter rather for you to decide than myself.

---

## Conservatism.

---

By H. S. SUTPHEN, D.D.S., Newark, N. J.

*Read before the Southern Dental Society, Camden, N. J., June 17, 1903.*

---

I shall attempt to point out to you in a plain, unvarnished and straightforward way some of the mistakes we all fall into through our over enthusiastic natures; and to suggest the remedy which experience, that great teacher, has vouchsafed in no uncertain voice.

We are, perhaps, more than any of the learned professions, open to the allurements and great possibilities of new fads and fancies, and I may add, fallacies, of various enthusiasts in our calling, who are carried away by ideas which on their faces appear to possess great value, but which upon careful trial prove to be either entirely valueless or harmful, or else less efficacious than old, tried and proved methods of practice.

Many years ago, before many of us were even  
**Filling Teeth.** in our cradles, Dr. Arthur attempted to revolutionize the accepted method of filling by advocating a wholesale cutting away of the tooth structure in making large V-shaped spaces between all the teeth. He presented the matter so forcibly before his *confreres* and the dental world generally that for several years it entered quite extensively into the practice of the day; but a few years only sufficed to prove the extremely harmful results, not taking into consideration at all the discomfort suffered by patients in the loss of so much valuable tooth substance, and the crowding into the gums of food with its resultant soreness.

The method was soon entirely given up amidst many wailings both from patients and operators.

To the very last, however, Dr. Arthur maintained the efficacy of his method, saying in proof thereof that his work had been so eminently successful that his patients never had occasion to visit him again. Another construction was given to this fact by his brothers in the profession.

Passing on from this we come to the era of extensive gold work, where almost whole days were given to the insertion of a single filling. This was not as disastrous as the cutting away of the teeth had been; but except in the hands of a few of the superior operators, it met with but indifferent success, and much of the good that might have resulted was dissipated by the elements of shock and fatigue, which are inevitable companions of such lengthy operations and which cause more damage to the general system than the resultant good accomplished.

Then we come to the copper amalgam craze which spread over the country like wild fire. The advocates of this material proclaimed its superiority as a tooth preserver, its ease of manipulation, its universal application in all cavities posterior to the cuspid tooth, its freedom from staining the tooth structure and other qualities not necessary to mention here.

As a result thousands of ounces were used throughout the length and breadth of the land. All know the result; and that almost every point advocated in its favor was disproved to the sorrow and mortification of its users.

It may have a place still among our filling materials, but so small a one that it is hardly worthy of mention.

Bridgework then claimed our attention and the most extensive operations were wildly advocated by leaders in this line of work; many valuable teeth were cut off and the whole arch bridged upon three or four indifferent supports with the result that in a short time these failed and the inevitable plate had to be inserted.

Bridgework properly done, intelligently and artistically constructed is one of the best methods we have of restoring lost members of the dental arch; but it should be done with the greatest care and study of environment.

Several years ago cataphoresis engaged our attention. Every dental meeting was occupied to a very large extent with its discussion, and the dental magazines were full of it. All sorts of appliances were put upon the market and we all bit at the tempting bait. Not with as much sorrow, I



## ITEMS OF INTEREST

may add, as with many of our other investments, but with the same result, namely: that the apparatus was relegated to the topmost shelf of the laboratory or the deepest recess of the cellar.

The harm done by cataphoresis was on the whole not great, the worst being probably that where success in obtunding the dentine obtained, either exposure of the pulp resulted, or else so much structure was removed that subsequent death of the pulp ensued with its attendant trouble to patient and operator alike.

But the time consumed in its application and the uncertainty of positive results finally caused the practical abandonment of the method.

**Pulp Mummification.** Pulp mummification has been very strongly advocated in various sections of the country, and its disciples have been very enthusiastic in its praises.

Statistics in this matter, however, have not been furnished, and I am not in possession of any facts to show whether the practice has been successful or otherwise. It certainly would be a boon to us in many instances if it could be relied upon to do the work claimed for it.

**Archite.** A little more than a year ago we had archite cement placed before us in such an enticing manner and with such wonderful promises of its remarkable properties, that we all opened our arms to it and used it with all the hope of the fulfillment of our longing for a cement filling that was to be ideal.

How quickly those were shattered you all know, and also the bitterness and chagrin we felt as filling after filling had to be replaced.

**Porcelain.** Shall I dwell upon porcelain? We are in it now. Its possibilities are great, and it seems to be the ideal filling for a large majority of the cavities which come to us. But its manipulation is so very different from anything we have been in the habit of using that great care and discretion should be employed, and we should be slow in its general adoption, rather allowing ourselves to grow into its use.

Our aim in all our work should be the preservation of the natural teeth, and we are in duty bound to do all in our power to attain this result. Any method and filling, which will best accomplish this end, we should adopt and devote our best effort and our greatest skill to its use; but we have no right to experiment with new radical methods which may cause the loss of the members we are trying to save.







## Second District Dental Society.

### March Meeting.

A regular meeting of the Second District Dental Society of the State of New York was held on Monday evening, March 9, 1903. The President, Dr. Hamlet, occupied the chair.

The minutes of the last meeting were read and approved.

The first paper of the evening was read by Dr. J. M. Byers.

#### Discussion on Dr. Byers's Paper.

**Dr. Walker.** I am interested in porcelain work and would like to know how to get out the matrices without twisting them.

**Dr. Byers.** The matrix is removed in the ordinary way with an exploring point, or any fine point, that will go under the edge and tease it out. I do not find very much difficulty in taking it out, if there is no undercut. If there is, you will have a hard time. The cavity must be on absolutely true lines, and then it is a very easy matter to pick it out.

**Dr. Barker.** Perhaps a little hint that has helped me out of many a tight place may be worth while mentioning. I do not use platinum foil; I use gold foil for matrices.



## ITEMS OF INTEREST

In deep cavities it is very apt to bend. I pack the matrix full of cotton, tight, with a cotton ball rammed in, and then drop melted wax on the cotton. You can put a hooked instrument into the cotton or the wax and pull it out. Even if you have wax and no cotton, it will hold the matrix in position and keep it from being moved. It may puzzle you to get the wax and cotton out of the matrix. Do not try it. Invest it in asbestos and burn it out—melt it out. There may be a little ash, which you can blow out with a puff of the breath; but there is nothing left that will cause trouble.

**Dr. Ottolengui.** When a gentleman reads a paper, somebody ought to get up and tell him how good it is. I want to compliment the essayist on presenting what to my mind is a new idea in porcelain work. I think the idea of making this porcelain piece first and pushing it through the matrix is not at all a bad one, and rather ingenious. I will say a word about the removal of the matrix with something filled in it. We must be careful in filling a matrix with anything like wax, to use something that does not contract. We put the material in with the idea of having the matrix retain its shape. If you use wax, you will be apt to draw it out of shape. I have heard recommended this month, a mixture of wax and paraffine, so as to have a combination that would soften very readily. It is to be used in a mushy consistency and pressed in almost cold. The method of getting rid of it was a little different from Dr. Barker's way. The matrix is placed in the furnace without being invested; a little piece of spunk being placed on top. With a very little heat, the material melts and is absorbed by the spunk, and there is a fairly clean matrix. I have tried the method of burning and have not been successful always in getting everything out. There may be something in the cotton or wax that is not entirely destroyed by combustion, and when it is heated up, it may adhere to the surface of the gold. That was why I abandoned it. I believe Dr. Walker will find if he continues to practice porcelain inlay work that he will have less and less need for wax or anything else. It is largely a matter of shaping the cavity and getting space. I always think the recommendation to have the teeth well wedged apart is a good one. It is also a good idea to have the gum forced away.

The next paper was by Dr. A. M. Nodine, entitled: "The Advantages of the Use of Hand Pressure in Filling Teeth With Gold."

### Discussion of Dr. Nodine's Paper.

**Dr. Hutchinson.** I very thoroughly agree with Dr. Nodine in regard to the advantages of hand pressure in the condensation of gold. It is a method I have practised

## SOCIETY DISCUSSIONS

almost exclusively in all classes of fillings during the past three or four years. I began using the hand instruments about four years ago, using the moss fiber set made by the S. S. White Co., and have used the moss fiber gold with few exceptions. Especially in manipulating the moss fiber gold, my experience has been that a more uniform density is obtained by hand pressure than with the mallet. As Dr. Ottolengui said in the paragraph quoted by Dr. Nodine, there is better cohesion throughout the filling when hand pressure is employed. A good many of my friends who have experimented with moss fiber gold, through my having spoken of it, have told me they had trouble. The fillings have scaled off, or pieces broken off. I learned that they used the mallet, and I think it is due to that. I used the mallet in order to convince myself of that, and where I used it there has not been perfect cohesion. I gradually dropped the mallet, until now I do not use it at all. I think you can feel the density of the gold under hand pressure, as it is impossible to do with the mallet. You get a thorough condensation—a strong plug. In making extreme contours of centrals, laterals, bicuspid and molars—all classes—it is a very rare thing for any piece of gold to come off; and so I have become a very strong advocate of the hand pressure method.

I think that the ramming of gold into a bone die, or any other kind of matrix, is no test at all.

**Dr. Fanning.** When we use gold, it is to fill the patient's teeth, and a great many things have to be taken into consideration, the principal one being the patient's feelings. About eight or ten years ago, some one raised a warning cry against the barbarous practice of "malleting teeth to death," as he put it. He said more teeth were malletted to death than were saved by gold fillings. As a young man I considered that and finally some hand pressure advocate came along and I took up that practice. As Dr. Hutchinson says, you can feel the gold condense under your hand, as you cannot feel it under any mallet. You see a bright surface, and that is all you know about it. It is true you have a cushion of gold under your mallet point, but you do not know what you are doing to the enamel margins under the gold. It may be a buffer, of course. I think it is the cause of many failures in gold fillings, not because the teeth are soft or there is any chemical reaction, but simply that the enamel edges are pounded by that vicious malleting. They all strike a direct blow. You can use any kind of a curved instrument you like—the blow does not follow that line. It follows a straight line from the mallet to the plugger point. You get a sliding motion, too, and it may disturb the filling, so that it is not adapted entirely to the walls where undoubtedly with hand pressure you can get adaptation in all directions without much trouble.

As to the test for density in pounding it in a die or a piece of bone,



## ITEMS OF INTEREST

or steel matrix, it may be true that it does weigh more, but if you will test the other fillings made with hand pressure, I do not think you can mallet it down any more.

**Dr. Hillyer.** Dr. Black has an instrument, or there is in existence an instrument, that will indicate exactly the force of a blow of any character by mallet, by hand, or anything else. The blow is measured exactly, to a hairbreadth. It is not measured by weight.

**Dr. Fanning.** I do not think Dr. Hillyer understands what I mean. I was not speaking of the amount of force, but the way it was used. It is a question of condensing the gold so that it is well adapted to the walls of the cavity. Dr. Van Woert once spoke of a contour filling in the mouth of Dr. Waters. He described how he put it in—around a platinum post. He said he used a large foot plugger, and he was not sure whether it was condensed through the entire surface. He said all around the surface was condensed, and he was not so particular about the inside. He did not mean to say that filling was porous, but it was not so hard in the interior, and I do not think that the question of the density is as important as the adaptation to the cavity walls. It is not the amount of pressure so much as the way of applying it. Dr. Van Woert said he used a large foot plugger, and perhaps the interior of the filling was not so hard as the outside. As I remember, it was done with a mallet.

**Dr. Ferris.** I thank Dr. Nodine for his very concise and interesting paper; but I must take some exception to Dr. Hutchinson's remarks in regard to hand pressure. I have been using moss fiber and spun gold for the last five years, and I have used them under tabulation in my office, under the different methods. To my mind I find that to work them quickly, with the same amount of perfection, the mallet in finishing develops the harder surface. We can all take our own view, but in operating quickly, in using the large serrated points for finishing, you are more apt to crush the fine edges of your cavity with the large point, than with a small point, in running about that finely ground edge, just before you get to your finishing. I take that position, as that has been my experience.

**Dr. Ottolengui.** It seems a little strange to hear so little said in opposition to this paper. There appears to be a consensus of acquiescence in the idea that hand pressure is better than mallet pressure, while as a matter of fact I believe that ninety-nine per cent of the profession are using mallets. There are two points about the paper that strike me: first, it is a hand pressure paper, and, second, it is a moss fiber paper.

## SOCIETY DISCUSSIONS

I have always wondered in my mind what leads  
**Plastic Golds.** a man to use any of the so-called plastic golds, and

I have concluded that the primary object any man has in view when he takes up plastic gold, is that he fancies he is going to be able to fill very large cavities quickly, because he can get a good big hunk of it that will very nearly fill the cavity, and put it right in. If that is the way you use the gold with the mallet, I am not surprised that you do not get good results with it. My experience with plastic golds has been that to get anything like success with any of them, requires a great deal longer time and much harder work than with the foils. You have to change what is plastic into what is solid, and you cannot do that with large pieces. For a great many years the Watts crystal gold was always kept by me in my office, simply to piece out little places where I had not been able to put enough gold at the first trial. After I learned how to avoid these discrepancies, I had no further use for Watts crystal gold, or any other crystal gold, and do not think I have used any, except experimentally, for fifteen years. I doubt very much if the best filling can be made with any crystal gold. If there is any object in having a filling dense, it should be dense from the bottom up, and there is where I take issue with some of the gentlemen out West who seem to gain the time they have lost in making the cavities large, by filling half of the cavities with soft gold and then putting hard gold on the outside.

I entirely agree with the gentleman who said  
**Test Fillings.** that test fillings made in matrices do not amount to anything. There is no way to gauge the amount of pressure, and we are asked to judge by the eye, which is a very poor method of judgment. The fillings would have to be tested in a very different way. I compliment the gentleman upon putting in such good fillings against the square walls. He has shown great dexterity in his exhibits, but they do not prove anything.

One of the great disadvantages of hand pressure  
**Hand Pressure.** is in building where there are very frail walls; you are liable to fracture them. The only real bad fracture I ever made was with a curved hand instrument, in a place where I could not work with a mallet instrument, and I was enabled to take the corner off the tooth very nicely. You are more liable to break teeth by hand pressure than with the light rapid blows of a mallet properly adjusted. I do not quite see why so few gentlemen have gotten up to speak in favor of the mallet. I do not believe the hand pressure fillings will wear as well in masticating surfaces, and I would not be at all surprised five years from now to hear the few gentlemen who have been using exclusively hand pressure for three years, say they have taken up the mallet



## ITEMS OF INTEREST

again, because some of their fillings had worn so badly. Where the filling is not subject to attrition, perhaps no such great density is necessary. It is a good idea to save your patient, but after all, you are living your own life, and you might as well save yourself. A patient has three or four fillings done in a year; you do more than that each day. You are taking a great deal more out of yourself than your patients have any claim on you for.

I want to speak in regard to what Dr. Ottolengui said about using large hunks of any plastic form of gold. The men who do that are bound to fail. They fail when they begin. The idea that plastic gold can be used in order to facilitate speed is a mistake. I have used nothing but plastic gold virtually for fourteen years. I have two eighths of 1,000 fine that I bought then, and they are not used up today. Since then I have used Crystalloid gold, Watts Crystal gold, Steurer's gold and moss fiber gold. It is not my purpose to advertise any particular make, but I have used crystal gold in general, because I feel I can make a more perfect filling with it than I can with the other gold. If I wanted to fill a box or any receptacle tight, I would rather use loose cotton than strips of linen cloth. Just so with gold. I look upon gold foil as a mere adaptation of a form of gold for the purpose of filling teeth, whereas the crystal forms of gold are especially manufactured for the purpose of filling teeth.

In regard to the hand pressure, it is harder on the operator. I am much more exhausted after putting in a large contour filling with hand pressure; but I feel that the filling is thorough, as it would not be with the mallet. I can show cases where the lower incisors were tipped on account of having worn away, where there was an upper denture, and crystal gold of some kind has been used for building up those tips, and I defy anybody to show tips that will wear better. They have been subjected to the attrition of porcelain teeth. Where do you put the strongest part of a building? In the foundation of course. As Dr. Ottolengui says, if gold is made dense in the undercuts, it should be made dense throughout. You want the greatest strength in the anchorage, and if you can fill the undercuts with crystal gold, it is strong enough for the contour. That is the way I look upon it. To illustrate: About twelve years ago I had a case where the central incisor had crumbled away. The pulp receded as the crumbling progressed, and it presented with fully two-fifths of the lower end of the incisor gone—a mesial cavity connecting with this breakdown edge. I did not want to devitalize—another reason why I acted as I did. Cutting a dove-tail across the end of the tooth, I filled with crystalloid gold. I filled the dove-tail down to a full contour, without any artificial support. It has been there twelve years and all the

## SOCIETY DISCUSSIONS

mastication is done with the front teeth, and the back of that gold filling, which involves the entire back of the tooth, from lingual to palatal, and from mesial to distal, takes the strain of mastication, and has not yet given way. I use crystal gold and hand pressure, because my experience has demonstrated to my satisfaction that more perfect results can be achieved by it, when a man knows how.

I have no doubt that dense fillings can be made with plastic gold. Just as bringing up a filling made in a die is not conclusive evidence, neither is the record of some fillings that have stood wear, because we do not know what the wear was. Citing a case from my own practice: a lady from Atlanta, Ga., was recommended to me by Dr. Hinman. I hardly believe anybody puts in better gold fillings than he does. He had built up several of the anterior teeth with some sort of gold. They all had edges turned up. They were perfectly dense fillings—as dense as if the gold had been poured in. She said the turning out of that gold had so annoyed Dr. Hinman that he had removed the fillings with the idea that he had not condensed the fillings as well as he should have. The man had undoubtedly put in his final fillings with the very best ability that was in him, and I testify that he has the ability; nevertheless these fillings turned up. It was a serious matter because she was constantly needing to have those ends filed, and that was shortening the fillings until the contours would be lost. She wanted one of those done over. What I did will indicate to you that the fault was not in Dr. Hinman, but in the material that he used. The trouble lay in the fact that in that particular mouth the stress of mastication was so great that no gold was sufficient. I simply cut away a portion of his filling—the masticating end—made my undercuts the same as though I were working on tooth structure, and built on with gold and platinum, and those fillings have stood. When you meet real stress, you will find real evidence. Where there is a great deal of stress, gold and platinum will outwear gold; heavy foil that is laid on in single layers will outwear gold put in in pellet form; gold put in pellet form will outwear any of the plastics. Yet, in some mouths, the plastics will wear well, because you have nice, delicate, little people, who eat boiled eggs and butter; but again, you have some people who eat tough chops and chew the bones.

The last speaker said he would rather fill a box with loose cotton than he would with strips of linen. That is the reverse of my idea; I would never dream for a moment that I could fill the box with cotton. I never could fill it with that springy mass; but I would feel that I could take the linen, and pack it in solid, layer after layer, as I do the filling.



## ITEMS OF INTEREST

I do not mean to say you could get a greater weight of cotton than solid cloth; but I say you could fill it better and adapt it better to an uneven surface. I do not say the specific gravity would be greater.

**Dr. Hutchinson.** I will make Dr. Ottolengui a promise. After five or six years more practice, if my crystal fillings break down through any fault of the material or manipulation—that is, the method—not the fault of the operator, I will acknowledge that the gold and manipulation are at fault. If hand pressure goes back on me, I will acknowledge it freely, and be glad to.

**Dr. Ottolengui.** The question came up tonight about quotations from certain test fillings, where two methods had been used, and the point was made that those tests were not in the mouth; then there has been a good deal of talk about moss fiber gold. Before it was put on the market, one of the agents came to my office with a sample of it, and asked me if I would use it and report on it. I said: "I will use it now, and you can see me do it. I have no faith in it, because it is a plastic gold." I was building down for a patient, two cuspid in the upper jaw, the cusps of which had worn off flat. In the agent's presence I filled one with No. 30 foil, and the other with the moss fiber gold, using the electric engine mallet. I used small pieces, which surprised him. He was not a dentist, but he had seen the fiber gold used by other dentists. Before putting it on the market, they wanted to see if it would be acceptable to the profession. He said he had not seen any gentleman use such small pieces, so according to the evidence here tonight I gave it all the chance in the world, and I used the same mallet, and the same foot plugger, and did it on the same day in the same mouth, thus giving it the same stress. That patient has been constantly under my observation. I think that gold has been on the market about five years. Both of those fillings are still in the mouth. I have never touched the hard good filling; I have polished the other several times. If I polish it much more, I will polish the occlusion away.

**Dr. Ferris.** I do not think that is a fair comparison. The doctor never had used moss fiber, and he compares his first filling with the gold he has been using for years and perfected himself in handling. He takes his first filling, and puts it alongside of his usual gold, and compares the result, which does not seem fair.

**The President.** In defense of the mallet, I will say that I never put in a hand pressure filling until I met Dr. Hutchinson one day, at Asbury Park, and he was telling

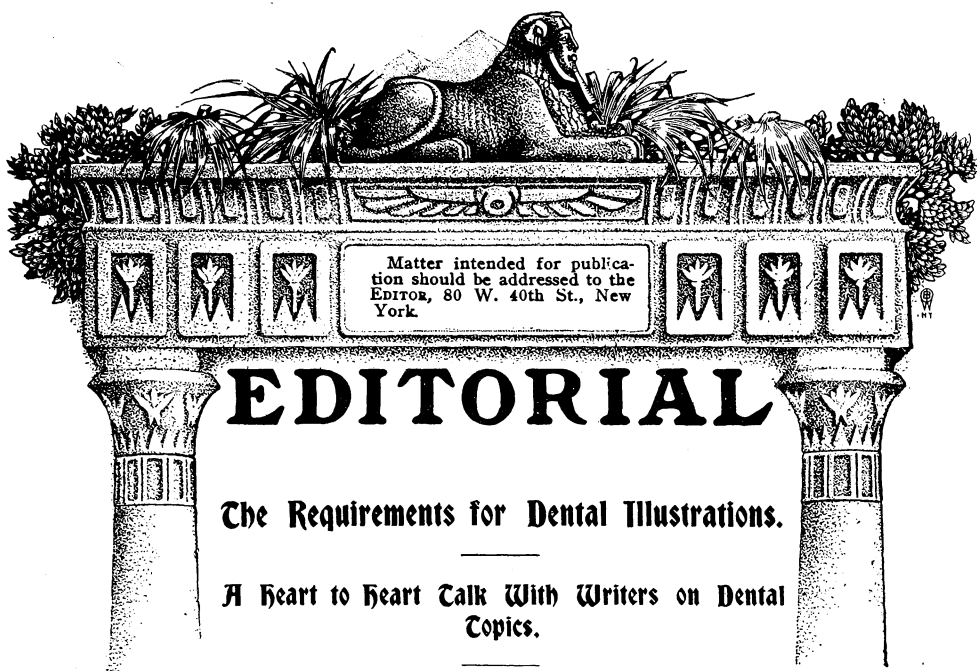


## SOCIETY DISCUSSIONS

me of the virtues of moss fiber. When I went home, I got some, but I have long since dropped its use, and gone back to foil and the mallet.

Those fillings that are being passed around are  
**Dr. Nodine.** no test, I admit. I did not bring them before you as a test. Sitting at the bench, you can use any amount of strength. It is not a test of skill, either. The fillings were put in with pellets of gold and hand pressure. I have not had many years of experience, of course, and I cannot tell what they will be five years hence; but as I put them in now, I feel as though they were as dense as the others. I use a thumb-shaped instrument, and the fillings seem dense to me. The way I came to use hand pressure was that I used it to put in Vernon's gold, and then attempted to add another gold to it with the mallet, and it would not cohere; so I took the pellets, put them over the Vernon gold; they cohered, and I kept on using it on that filling. Some time ago I had occasion to put in a large filling on the lingual surface of a cuspid, and I filled the major part with Vernon's gold, and then put pellets of gold on top of that. Of course in some cavities you can with ordinary force break away a wall, but then if you are a little careful, I think you can avoid it. There are disadvantages in the use of hand pressure—I stated that at the commencement; but I think it has enough advantages to make it preferable in a good many cavities. In using pellets you can get as dense a filling in that way as by any other.





September being practically the beginning of the dental year, when members of the profession are returning from the mountains, or the seashore, to resume work, it seems a fitting time for a confidential talk with those who make our literature, the men who write. These may be divided into two classes, those who know how to write, and those who do not. To the former little is to be said. The latter need not be discouraged; many men not gifted in this direction are nevertheless talented dentists, with knowledge and methods well worthy of publication, and so long as their manuscripts describe some novel or useful mode of work, they will be welcomed, even though much editorial revision may be needed. Indeed that is primarily the editor's task.

But when we come to the question of illustrations, only a very small percentage of writers have any adequate idea of the needs of the situation. Let us cite a few examples of the sort of letters all too frequently received. Dr. Bridgebuilder sends an article describing a novel sort of bridge, evidently quite complicated in its technique, which makes it diffi-



## EDITORIAL

cult to comprehend from words alone just what it is that he wishes to introduce, and in his accompanying letter he says: "If you think a few cuts would help, put them in." Thus the editor is not only expected to understand his meaning, but is asked to make drawings for the engraver. Sometimes the author relieves the editor of this by stating it thus: "If you want cuts let your engraver fix them up." But this is little better, for just as the editor is not a draughtsman, neither is the engraver a dentist. The only proper course, in such a case, is for the writer to furnish models and specimens of his work, from which, with proper instructions from the editor, the engraver can produce satisfactory results.

Next we have the man who fully appreciates the value of pictures and asks for many more than are really requisite (a fault, however, which is easily overcome): yet, although desiring ten or twenty illustrations, he overlooks entirely the space which they will occupy, and furnishes manuscript for about two printed pages, or enough to surround at most four of the blocks.

A similar error often made by writers, to which we would call attention, is the introduction of illustrations at too short intervals. It is always desirable, where possible, that the figure should appear on the same page with the reference or descriptive matter which goes with it. This is manifestly impossible where the text is made to read thus: "In the first illustration is seen articulated models of the case as it was originally; Fig. 2 shows the condition at the end of four weeks, Fig. 3 being the fixture used to produce this result. In Fig. 4 we have the case completed, while Fig. 5 shows the retainer." Here we have five cuts, each of which should normally occupy a quarter of a page, and only five lines of text.

It may be asked: "How could this have been avoided?" As follows: In connection with the first illustration we should have had a complete history of the case, together with its diagnosis and the reasons for the course of treatment adopted, in all at least half a page. If there was any good reason for showing an intermediate stage of the work, requiring figures two and three, it is manifest that these reasons should appear in print, with some account of the work as it progressed; whether or not the original line of treatment was followed or abandoned at this point. Otherwise the two cuts might have been omitted. In regard to the completed case, figure four, there should be a few lines stating whether or



## ITEMS OF INTEREST

not all that was aimed at was attained, and if not why not. If there were no facts of this kind, of interest, figures two and three could have been omitted, and figure four placed alongside of the first, thus having the original condition and the final result, side by side, without taking up more room than for the single figure. In regard to figure five, the retainer, if it was not peculiar the cut might be omitted; if it was of unusual character, a description should accompany the figure.

This subject has been discussed at this length because the improper relationship between text and illustrations desired is so common, and at the same time so troublesome, that it is hoped that, having had their attention called to it, writers will in future give more thought to the preparation of such matter.

### **How to Obtain Good Illustrations.**

We are very willing to use illustrations wherever they are of real assistance, and we are desirous that they should be of first-class quality. It is impossible at all times to produce even presentable results, and where we fail we wish it distinctly understood that the fault lies with the authors. For a fine illustration we must have either a first-class photograph; a correct drawing; or the models or appliances.

Let us prove our claims that the fault lies with the authors. Look anywhere in our pages for an engraving of an appliance. If it be an instrument, vulcanizer, furnace, or any manufactured article, the cut will prove to be an accurate representation of the article pictured. Why? Because the engraver is furnished with a perfect model from which to make his drawing and as a mechanical draughtsman there is no excuse for a failure. But suppose that we deal with a plaster cast of the mouth, furnished by a dentist? If the dentist has done his work in a slovenly manner, and sends a cast on which bicuspid and molars are scarcely distinguishable, it is impossible for the engraver to make a good cut, without himself having a knowledge of tooth forms, so that he can make alterations. Our engraver has had long experience, and does better year by year, but of course he is not a dentist and should not be expected to make good representations of teeth from bad plaster casts.

The same is true of half-tone work. Sometimes photographs are sent to us. Let it be remembered that the half-tone cannot be better than the photograph. In other cases models are received and we have the



## EDITORIAL

photograph and half-tone made, but again in this style of illustration the result is limited by the quality of the model.

A few words of advice to authors. The best method of supplying "copy" for illustrations is to furnish a good drawing, which gives the exact view desired. If these drawings are slightly inartistic, the work of a good amateur for example, they are easily corrected, so long as the essential features are clearly indicated to the mind of a man who is not a dentist; an engraver.

In crown and bridgework, models and specimens are as good, and often better than drawings, if accompanied by sketches showing the view of each desired. In this class of illustrations the plaster cast is often an unessential detail and the wood engraver will produce figures which are adequate in all important particulars.

In the field of orthodontia, where anatomical detail counts, in order to meet modern standards, the most accurate results are obtainable by photography and the half-tone process. It is nevertheless true that the half-tone pictures of plaster casts seen in dental publications are more often bad than good. Even a fairly presentable cast may result in a bad photograph because of the obstacles in the way of success. In the first place, often a professional photographer is called in, a man entirely unfamiliar with such work. He arranges a sharp focus, with a strong light on the model, and then, because of that intensity of light, he stops down his lens, thus only partly overcoming his faulty lighting, while he creates a greater fault by accentuating his focus. The result usually is a picture with great contrasts of white and black, and with every flaw in the plaster cast, every scratch, or pit, made a dozen times more conspicuous than in the cast itself.

The finest half-tone dental illustrations come from dentists who are themselves photographers; such men as Dr. Leon Williams, Dr. Norman I. Broomell, and Drs. Cryer and Kirk. See illustrations in recent articles in *ITEMS OF INTEREST*, by Drs. Cryer and Kirk.

To those who have had some experience in camera work the following suggestions may be helpful in attempting to photograph casts. First see that the surface of the cast is as smooth as possible, *without being varnished*. Scratches should be obliterated, and pits filled up with plaster applied with a camel's hair "spotting" brush.



## ITEMS OF INTEREST

Cover a board with black velveteen or broadcloth, stretching the same tight. This is to be used as the background. Drive into this board two large iron nails, and on these rest a strip of black sheet iron. This forms a shelf on which the casts may rest, and the edge of the sheet iron shelf will not show in the picture.

Pose the models in front of a window so that they receive direct light (not sunlight), draw down the window curtain (buff or gray, but not white) so as to soften the light. First focus sharply on that part of the cast nearest to the lens so as to bring out distinctly some defect, as for example a slight scratch (or faint pencil mark), then turn the focusing screw very gently till this scratch disappears. This will bring the cast slightly out of focus, causing just enough blurring to obliterate all defects. Should the more distant parts of the model be too much blurred, gradually stop down the lens till they are equal in sharpness to the nearest point. Give a full exposure because, the cast being fully illuminated, the shadows will be very slight and only a full exposure will reproduce them. This full or over exposure is corrected in development. Take developer of the strength used by the operator for his ordinary work and dilute with half its quantity of water. The plate will be slowly developed, requiring from ten to forty minutes, but the resulting negative will print a beautiful soft picture of the model, with all its half-tones well brought out. From such photographs, fine half-tones can be made and technically, such pictures must be better than even the best wood-cut, since the camera is more accurate than the cleverest draughtsman.





# BOOK REVIEWS

## Grant's Oral Surgery.

**A Text-Book of Surgical Principles and Surgical Diseases of the  
Face, Mouth and Jaws, for Dental Students.**

By H. HORACE GRANT, A.M., M.D.,

Professor of Surgery and of Clinical Surgery in the Hospital of the College of  
Medicine; Professor of Oral Surgery in the Louisville College of Dentistry.

Published by W. B. Saunders & Co., Philadelphia, Pa.

The preface to this work sets forth its claim in a manner so modest that the casual observer would hardly be attracted to it unless that very modesty becomes an attraction.

Starting in the first chapter on bacteriology the interest is at once obtained by the manner in which the surgical pathology is introduced, and retained by the succinct method, step by step, in which even a layman can understand the development and growth of microbic organisms. From this simple and almost kindergarten method, the subject is gradually enlarged and in a very clear and comprehensive way until the field of bacteriology and the classification of germs becomes perfectly plain. Then follows the description of the germs in inflammation and suppuration, and diagnosis and treatment in minute detail, of the principles and practice of surgery. Also a short chapter on hare lip and cleft palate, in which early treatment is advocated with the hollow hard rubber appliance for mechanical treatment, and staphylorrhaphy much after the method of Dr. Brophy.





There is also an excellent chapter on fractures of the jaw, giving all the different methods in detail, especially that of Dr. Angle, all of which is beautifully illustrated. Another chapter gives many, in fact about all the surgical operations ever performed on the human head, illustrated and described in detail, the majority of which, while they are of great interest, are outside the domain of dentistry.

The book is beautifully written, should be in the library of every dentist, and would do honor to the library of all general surgeons.

R. C. B.

---

## **Anatomy.**

---

### **A Manual for Students and Practitioners.**

---

By WILLIAM H. ROCKWELL, Jr., M.D.

Edited by Ben B. Gallaudet, M.D.,

Published by Lea Bros. & Co., Philadelphia, Pa.

---

This small volume gives in a terse and abridged way all the essential facts of human anatomy as described in the larger editions, and can be most heartily recommended as being the best book of its class at the present time.

As stated in its preface it follows closely the later editions of Gray's anatomy and will be found very useful for the student who desires to have an anatomical text-book that can be carried in the pocket and consulted at spare moments.

One misses the illustrations that are such a help in the study of anatomy and it is to be regretted that more of them could not have been introduced into the volume.

Taken all together it can be recommended to both the student and practitioner and no one will regret having it in his library.

W. S. S.

